

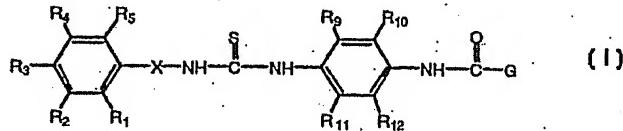


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(54) Title: ACETAMIDE AND SUBSTITUTED ACETAMIDE-CONTAINING THIOUREA INHIBITORS OF HERPES VIRUSES



## (57) Abstract

Compounds of formula (I) wherein R<sub>1</sub>-R<sub>5</sub> are independently selected from hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkynyl of 2 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 carbon members, aryl, heteroaryl, halogen, -CN, -NO<sub>2</sub>, -CO<sub>2</sub>R<sub>6</sub>, -COR<sub>6</sub>, -OR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -NR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z provided that at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen; or R<sub>2</sub> and R<sub>3</sub> or R<sub>3</sub> and R<sub>4</sub> taken together form a 3 to 7 membered heterocycloalkyl or 3 to 7 membered heteroaryl; R<sub>6</sub> and R<sub>7</sub> are independently hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, or aryl; R<sub>8</sub> is hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 members, aryl or heteroaryl, or R<sub>7</sub> and R<sub>8</sub> taken together may form a 3 to 7 membered heterocycloalkyl; R<sub>9</sub>-R<sub>12</sub> are independently hydrogen, alkyl of 1 to 4 carbon atoms, perhaloalkyl of 1 to 4 carbon atoms, haloxy of 1 to 4 carbon atoms, or cyano, or R<sub>9</sub> and R<sub>10</sub> or R<sub>11</sub> and R<sub>12</sub> may be taken together to form aryl of 5 to 7 carbon atoms; W is O, NR<sub>6</sub>, or is absent; Y is -(CO)- or -(CO<sub>2</sub>)-, or is absent; Z is alkyl of 1 to 4 carbon atoms, -CN, -CO<sub>2</sub>R<sub>6</sub>, COR<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -OCOR<sub>6</sub>, -NR<sub>6</sub>COR<sub>7</sub>, -OCONR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, SR6N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or phenyl; G is alkyl of 1 to 6 carbon atoms; X is a bond, -NH, alkyl of 1 to 6 carbon atoms, alkenyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms; thioalkyl of 1 to 6 carbon atoms, alkylamino of 1 to 6 carbon atoms, or (CH)<sub>n</sub>J; J is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, phenyl or benzyl; and n is an integer from 1 to 6; or pharmaceutical salts thereof, are useful in the treatment of diseases associated with herpes viruses including human cytomegalovirus, herpes simplex viruses; Epstein-Barr virus, varicella-zoster virus, human herpesviruses-6 and -7, and Kaposi herpesvirus.

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**ACETAMIDE AND SUBSTITUTED ACETAMIDE-CONTAINING  
THIOUREA INHIBITORS OF HERPES VIRUSES**

**Background of the Invention**

5        Eight viruses have been identified which are members of the family Herpesviridae (reviewed in Roizman, B. 1996. *Herpesviridae*, p. 2221-2230. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.), *Fields Virology*, 3rd ed. Lippincott-Raven Publishers, Philadelphia, PA). Each member of this family is characterized by an enveloped virus containing proteinaceous tegument and nucleocapsid, the latter of  
10      which houses the viruses' relatively large double-stranded DNA genome (i.e. approximately 80-250 kilobases). Members of the human alphaherpesvirus subfamily are neurotropic and include herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2), and varicella-zoster virus (VZV). The human betaherpesviruses are cytomegalovirus (HCMV), human herpesvirus 6 (HHV-6) and human herpesvirus 7  
15      (HHV-7). The gammaherpesviruses are lymphotropic and include Epstein-Barr virus (EBV) and Kaposi's herpesvirus (HHV-8). Each of these herpesviruses is causally-related to human disease, including herpes labialis and herpes genitalis (HSV-1 and HSV-2 [Whitley, R.J. 1996. *Herpes Simplex Viruses*, p. 2297-2342. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.), *Fields Virology*, 3rd ed. Lippincott-Raven  
20      Publishers, Philadelphia, PA]); chicken pox and shingles (VZV [Arvin, A. 1996. *Varicella-Zoster Virus*, p. 2547-2585. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.), *Fields Virology*, 3rd ed. Lippincott-Raven Publishers, Philadelphia, PA]); infectious mononucleosis (EBV [Rickinson, A. B. and Kieff, E. 1996. *Epstein-Barr Virus*, p. 2397-2446. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.),  
25      *Fields Virology*, 3rd ed. Lippincott-Raven Publishers, Philadelphia, PA]); pneumonia and retinitis (HCMV [(Britt, W. J., and Alford, C. A. 1996. *Cytomegalovirus*, p. 2493-2523. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.), *Fields Virology*, 3rd ed. Lippincott-Raven Publishers, Philadelphia, PA)]; exanthem subitum (HHV-6 [(Pellet, P. E., and Black, J. B. 1996. *Human Herpesvirus 6*, p. 2587-2608. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.), *Fields Virology*, 3rd ed. Lippincott-Raven Publishers, Philadelphia, PA] and HHV-7  
30      [Frenkel, N., and Roffman, E. 1996. *Human Herpesvirus 7*, p. 2609-2622. In B. N.

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- Fields, D. M. Knipe, and P. M. Howley (ed.), Fields Virology, 3rd ed. Lippincott-Raven Publishers, Philadelphia, PA]); and Kaposi's sarcoma (HHV-8 [Neipel, F., Albrecht, J.C., and Fleckenstein, B. 1997. Cell-homologous genes in the Kaposi's sarcoma-associated rhadinovirus human herpesvirus 8: determinants of its pathogenicity? *J. Virol.* 71:4187-92, 1997]). HCMV is considered in more detail below. Following the primary infection, herpesviruses establish latency within the infected individual and remain there for the remainder of his/her life. Periodic reactivation of latent virus is clinically relevant. In the case of HSV, reactivated virus can be transmitted to infants during birth, causing either skin or eye infection, central nervous system infection, or disseminated infection (i.e. multiple organs or systems). Shingles is the clinical manifestation of VZV reactivation. Treatment of HSV and VZV is generally with antiviral drugs such as acyclovir (Glaxo Wellcome), ganciclovir (Roche) and foscarnet (Asta) which target viral encoded DNA polymerase.
- 15                   HCMV is a ubiquitous opportunistic pathogen infecting 50-90% of the adult population (Britt, W. J., and Alford, C. A. 1996. Cytomegalovirus, p. 2493-2523. In B. N. Fields, D. M. Knipe, and P. M. Howley (ed.), Fields Virology, 3rd ed. Lippincott-Raven Publishers, Philadelphia, Pa.). Primary infection with HCMV is usually asymptomatic, although heterophile negative mononucleosis has been observed. The virus is horizontally transmitted by sexual contact, breast milk, and saliva. Intrauterine transmission of HCMV from the pregnant mother to the fetus occurs and is often the cause of serious clinical consequences. HCMV remains in a latent state within the infected person for the remainder of his/her life. Cell-mediated immunity plays a central role in controlling reactivation from latency. Impaired cellular immunity leads to reactivation of latent HCMV in seropositive persons.

- 30                   HCMV disease is associated with deficient or immature cellular immunity. There are 3 major categories of persons with HCMV disease (reviewed by Britt and Alford, 1996). (1) In immunocompromised (AIDS) patients, HCMV is one of the two most common pathogens causing clinical disease (the other is *Pneumocystis*). The most common manifestation of HCMV in AIDS is retinitis, although infection of other organs including the adrenal glands, lungs, GI tract, and central nervous system

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are also reported frequently. 90% of AIDS patients have active HCMV infection; 25-40% (~85,000 patients in the United States) have life- or sight-threatening HCMV disease. HCMV is the cause of death in 10% of persons with AIDS. (2) Due to immune system suppression to reduce the risk of graft rejection, HCMV reactivation or reinfection is common amongst kidney, liver, heart, and allogeneic bone marrow transplant patients. Pneumonia is the most common HCMV disease in these patients, occurring in up to 70% of these transplant patients. (3) Congenital infection due to HCMV occurs in 1% of all births, about 40K per year. Up to 25% of these infants are symptomatic for HCMV disease between ages 0-3 years. HCMV disease is progressive, causing mental retardation and neurological abnormalities, in children. Recent studies suggest that treatment with anti-HCMV drugs may reduce morbidity in these children.

Several antiviral drugs are currently being marketed (Bron, D., R. Snoeck, and L. Lagneaux. 1996. New insights into the pathogenesis and treatment of cytomegalovirus. *Exp. Opin. Invest. Drugs* 5:337-344; Crumpacker, C. 1996. Ganciclovir. *New Eng. J. Med.* 335:721-729; Sachs, S., and F. Alrabiah. 1996. Novel herpes treatments: a review. *Exp. Opin. Invest. Drugs* 5:169-183). These include: ganciclovir (Roche), a nucleoside analog with hemopoietic cell toxicity; foscarnet (Astra), a pyrophosphate analog with nephrotoxicity; and cidofovir, (Gilead), a nucleoside phosphonate with acute nephrotoxicity. Each of these drugs target the viral-encoded DNA polymerase, are typically administered intravenously due to their low bioavailability, and, as noted above, are the source of significant toxicity. Ganciclovir-resistant mutants which arise clinically are often cross-resistant with cidofovir. Hence, there is a need for safer (i.e. less toxic), orally bioavailable anti-viral drugs which are directed against novel viral targets.

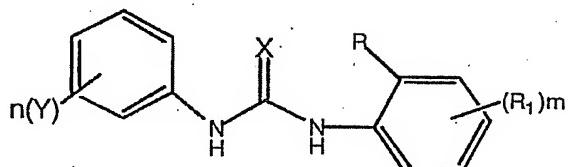
Phenyl thioureas are disclosed for use in a variety of pharmaceutical applications. Armistead, et al., WO 97/40028, teaches phenyl ureas and thioureas as inhibitors of the inosine monophosphate dehydrogenase (IMPDH) enzyme which is taught to play a role in viral replication diseases such herpes.

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Widdowson, et al., WO 96/25157, teaches phenyl urea and thiourea compounds of the below formula for treating diseases mediated by the chemokine, interleukin-8.



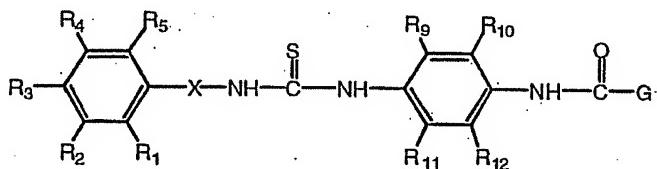
- 5 Morin, Jr., et al., U.S. Patent No. 5,593,993 teaches certain phenyl thiourea compounds for treatment of AIDS and the inhibition of the replication of HIV and related viruses.

10 Therefore, it is an object of this invention to provide compounds, and pharmaceutically acceptable salts thereof, to inhibit and/or treat diseases associated with herpes viruses including human cytomegalovirus, herpes simplex viruses, Epstein-Barr virus, varicella-zoster virus, human herpesviruses-6 and -7, and Kaposi herpesvirus.

15

### Description of the Invention

In accordance with the present invention are provided compounds having the formula:



I

20 wherein

25

R<sub>1</sub>-R<sub>5</sub> are independently selected from hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkynyl of 2 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 carbon members, aryl, heteroaryl, halogen, -CN, -NO<sub>2</sub>, -CO<sub>2</sub>R<sub>6</sub>, -COR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -NR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z provided that at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen; or R<sub>2</sub> and R<sub>3</sub> or R<sub>3</sub> and R<sub>4</sub>, taken

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together form a 3 to 7 membered heterocycloalkyl or 3 to 7 membered heteroaryl;

R<sub>6</sub> and R<sub>7</sub> are independently hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, or aryl;

5 R<sub>8</sub> is hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 members, aryl or heteroaryl, or

R<sub>7</sub> and R<sub>8</sub>, taken together may form a 3 to 7 membered heterocycloalkyl;

10 R<sub>9</sub>-R<sub>12</sub> are independently hydrogen, alkyl of 1 to 4 carbon atoms, perhaloalkyl of 1 to 4 carbon atoms, halogen, alkoxy of 1 to 4 carbon atoms, or cyano, or R<sub>9</sub> and R<sub>10</sub> or R<sub>11</sub> and R<sub>12</sub> may be taken together to form aryl of 5 to 7 carbon atoms;

W is O, NR<sub>6</sub>, or is absent;

Y is -(CO)- or -(CO<sub>2</sub>)-, or is absent;

15 Z is alkyl of 1 to 4 carbon atoms, -CN, -CO<sub>2</sub>R<sub>6</sub>, COR<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -OCOR<sub>6</sub>, -NR<sub>6</sub>COR<sub>7</sub>, -OCONR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, SR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or phenyl;

G is alkyl of 1 to 6 carbon atoms; and

20 X is a bond, -NH, alkyl of 1 to 6 carbon atoms, alkenyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, thioalkyl of 1 to 6 carbon atoms, alkylamino of 1 to 6 carbon atoms, or (CH)<sub>J</sub>;

J is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, phenyl or benzyl; and

n is an integer from 1 to 6;

25 or a pharmaceutical salt thereof.

In some preferred embodiments of the present invention at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen. In some preferred embodiments at least one of R<sub>1</sub>-R<sub>5</sub> is a halogen. In more preferred embodiments R<sub>2</sub> and/or R<sub>4</sub> are chlorine.

30 In some preferred embodiments of the present invention each of R<sub>9</sub>-R<sub>12</sub> is hydrogen. In other embodiments of the present invention, at least 1 of R<sub>9</sub>-R<sub>12</sub> is not hydrogen. Preferably R<sub>9</sub>-R<sub>12</sub> are selected from halogen, methyl, methoxy, and cyano.

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G is preferably methyl.

Preferred compounds of the present invention are the following compounds which include pharmaceutical salts thereof.

- 5        N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide;  
          N-{4-[3-(3,5-Dichloro-4-ethoxy-phenyl)-thioureido]-phenyl}-acetamide;  
          N-{4-[3-(3,5-Dichloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-  
          acetamide;  
          N-{4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-  
10      acetamide;  
          N-(4-{3-[3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido}-  
          phenyl)-acetamide;  
          N-(4-{3-[4-(1-Benzyl-pyrrolidin-3-ylamino)-3-chloro-phenyl]-thioureido}-  
          phenyl)-acetamide;  
15      N-{4-[3-(3-Chloro-4-vinyl-phenyl)-thioureido]-phenyl}-acetamide;  
          N-{4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-acetamide;  
          N-[4-(3-{4-[(1-Benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl}-  
          thioureido)-phenyl]-acetamide;  
          N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-  
20      thioureido)-phenyl]-acetamide;  
          N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-  
          thioureido)-phenyl]-acetamide;  
          N-{4-[3-(3-Chloro-4-iodo-phenyl)-thioureido]-phenyl}-acetamide;  
          N-{4-[3-(3-Chloro-4-trifluoromethyl-phenyl)-thioureido]-phenyl}-acetamide;  
25      and     N-{4-[3-(3-Chloro-4-isoxazol-5-yl-phenyl)-thioureido]-phenyl}-acetamide.

Alkyl as used herein refers to straight or branched chain lower alkyl of 1 to 6 carbon atoms. Exemplary alkyl groups include methyl, ethyl, propyl, isopropyl, butyl, isobutyl, t-butyl, pentyl and hexyl.

30      Alkenyl as used herein refers to straight or branched chain lower alkyl of 2 to 6 carbon atoms containing at least one carbon-carbon double bond. Alkenyl includes vinyl groups.

Alkynyl as used herein refers to straight or branched chain lower alkyl of 2 to 6 carbon atoms containing at least one carbon-carbon triple bond.

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Alkyl, alkenyl and alkynyl groups of the present invention may be substituted or unsubstituted.

Cycloalkyl refers to a saturated mono or bicyclic ring system of 3 to 10 carbon atoms. Exemplary cycloalkyl groups include cyclopentyl, cyclohexyl and 5 cycloheptyl. Cycloalkyl groups of the present invention may be substituted or unsubstituted.

Heterocycloalkyl refers to a saturated mono or bicyclic ring system of 3 to 10 members having 1 to 3 heteroatoms selected from N, S and O, including, but not limited to aziridinyl, azetidinyl, imidazolidinyl, morpholinyl, thiomorpholinyl, 10 piperazinyl, pyrazolidinyl, piperidinyl, and pyrrolidinyl. Heterocycloalkyl groups of the present invention may be substituted or unsubstituted.

Aryl, as used herein refers to an aromatic mono or bicyclic ring of 5 to 10 carbon atoms. Exemplary aryl groups include phenyl, naphthyl, and biphenyl. Aryl groups of the present invention may be substituted or unsubstituted.

15 Heteroaryl as used herein refers to an aromatic mono or bicyclic ring of 5 to 10 members having 1 to 3 heteroatoms selected from N, S or O including, but not limited to thiazolyl, thiadiazolyl, oxazolyl, furyl, indolyl, benzothiazolyl, benzotriazolyl, benzodioxyl, indazolyl, and benzofuryl. Preferred heteroaryls include quinolyl, isoquinolyl, napthalenyl, benzofuranyl, benzothienyl, indolyl, pyridyl, 20 pyrazinyl, thienyl, furyl, pyrrolyl, isoxazolyl, oxazolyl, isothiazolyl, thiazolyl, pyrazolyl, triazolyl, thiadiazolyl, and imidazolyl. Heteroaryl groups of the present invention may be substituted or unsubstituted.

Perhaloalkyl refers to an alkyl group of 1 to 6 carbon atoms in which three or more hydrogens are substituted with halogen.

25 Phenyl as used herein refers to a 6 membered aromatic ring.

Halogen, as used herein refers to chlorine, bromine, iodine and fluorine.

Unless otherwise limited substituents are unsubstituted and may include alkyl of 1 to 6 carbon atoms, cycloalkyl of 1 to 6 carbon atoms, heterocycloalkyl of 1 to 6 members, perhaloalkyl of 1 to 6 carbon atoms, alkylamino, dialkylamino, aryl or 30 heteroaryl.

Carbon number refers to the number of carbons in the carbon backbone and does not include carbon atoms occurring in substituents such as an alkyl or alkoxy substituents.

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Where terms are used in combination, the definition for each individual part of the combination applies unless defined otherwise. For instance, alkylcycloalkyl is an alkyl-cycloalkyl group in which alkyl and cycloalkyl are as previously described.

5        Pharmaceutically acceptable salts are the acid addition salts which can be formed from a compound of the above general formula and a pharmaceutically acceptable acid such as phosphoric, sulfuric, hydrochloric, hydrobromic, citric, maleic, succinic, fumaric, acetic, lactic, nitric, sulfonic, p-toluene sulfonic, methane sulfonic acid, and the like.

10      The compounds of this invention contain a chiral center, providing for various seteroisomeric forms of the compounds such as racemic mixtures as well as the individual optical isomers. In some preferred embodiments of the present invention the compounds of the present invention are substantially pure optical isomers. By substantially pure is meant the composition contains greater than 75% of the desired 15 isomer and may include no more than 25% of the undesired isomer. In more preferred embodiments the pure optical isomer is greater than 90% of the desired isomer. In some preferred emodiments, when the target is VZV, the (S) isomer is preferred. The individual isomers can be prepared directly or by asymmetric or stereospecific synthesis or by conventional separation of optical isomers from the racemic mixture.

20      Compounds of the present invention may be prepared by those skilled in the art of organic synthesis employing methods described below which utilize readily available reagents and starting materials unless otherwise described. Compounds of the present invention are thus prepared in accordance with the following schemes.

25      The novel compounds of the present invention are prepared according to the following reaction schemes.

Referring to Methods 31 and 34, reacting appropriately substituted amines 2, wherein the substitutents R<sub>1</sub>-R<sub>5</sub>, and X are described as above, with appropriately substituted isothiocyanates 3, wherein the substituents R<sub>9</sub>-R<sub>12</sub> and G are described 30 above, either neat or in an appropriate solvent such as tetrahydrofuran, acetonitrile, ethyl acetate, dichloromethane, or N,N-dimethylformamide affords the desired thioureas 1. Similarly, reaction of appropriately substituted isothiocyanates 4, wherein the substitutents R<sub>1</sub>-R<sub>5</sub>, and X are described as above with appropriately

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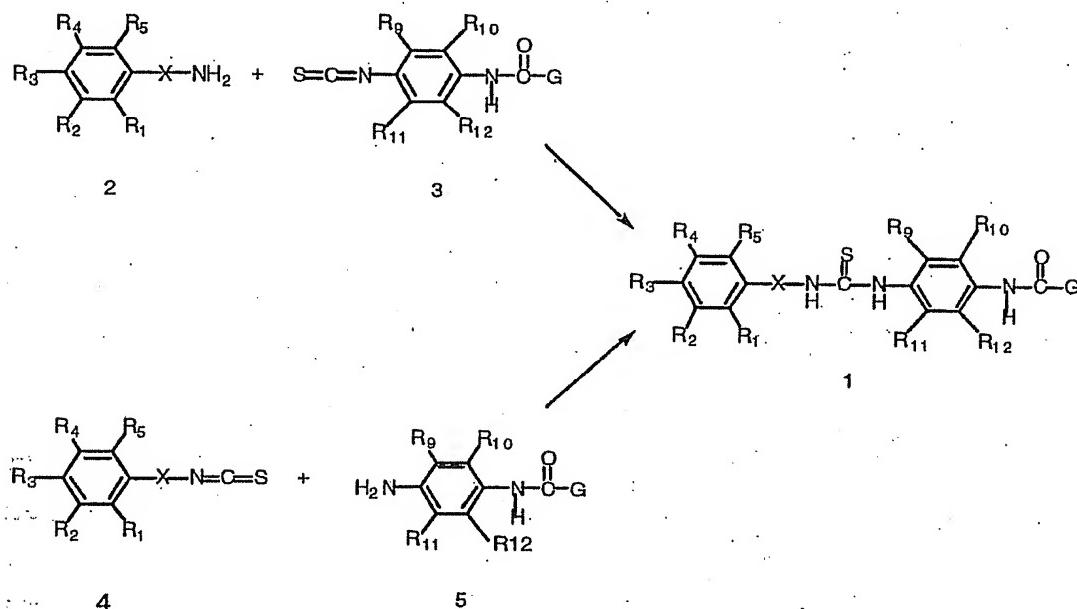
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substituted anilines 5, wherein the substituents R<sub>9</sub>-R<sub>12</sub> and G are described above, in a convenient solvent such as those listed above affords the desired thioureas 1.

## Methods 31 and 34

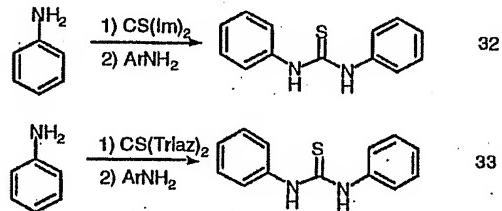
5



Alternatively, appropriately substituted thioureas 1 can be prepared as described by Methods 32 and 33 by reacting amines 2 and 5, wherein R<sub>1</sub>-R<sub>5</sub>, R<sub>9</sub>-R<sub>12</sub> and G are described as above, in the presence of either one molar equivalent of 1,1'-thiocarbonyl diimidazole in an appropriate solvent such as dichloro-methane and tetrahydrofuran or mixtures thereof or one molar equivalent of 1,1'-thiocarbonyl-di-(1,2,4)-triazole in an appropriate solvent such as dichloromethane and tetrahydrofuran or mixtures thereof at room temperature:

## Methods 32, 33

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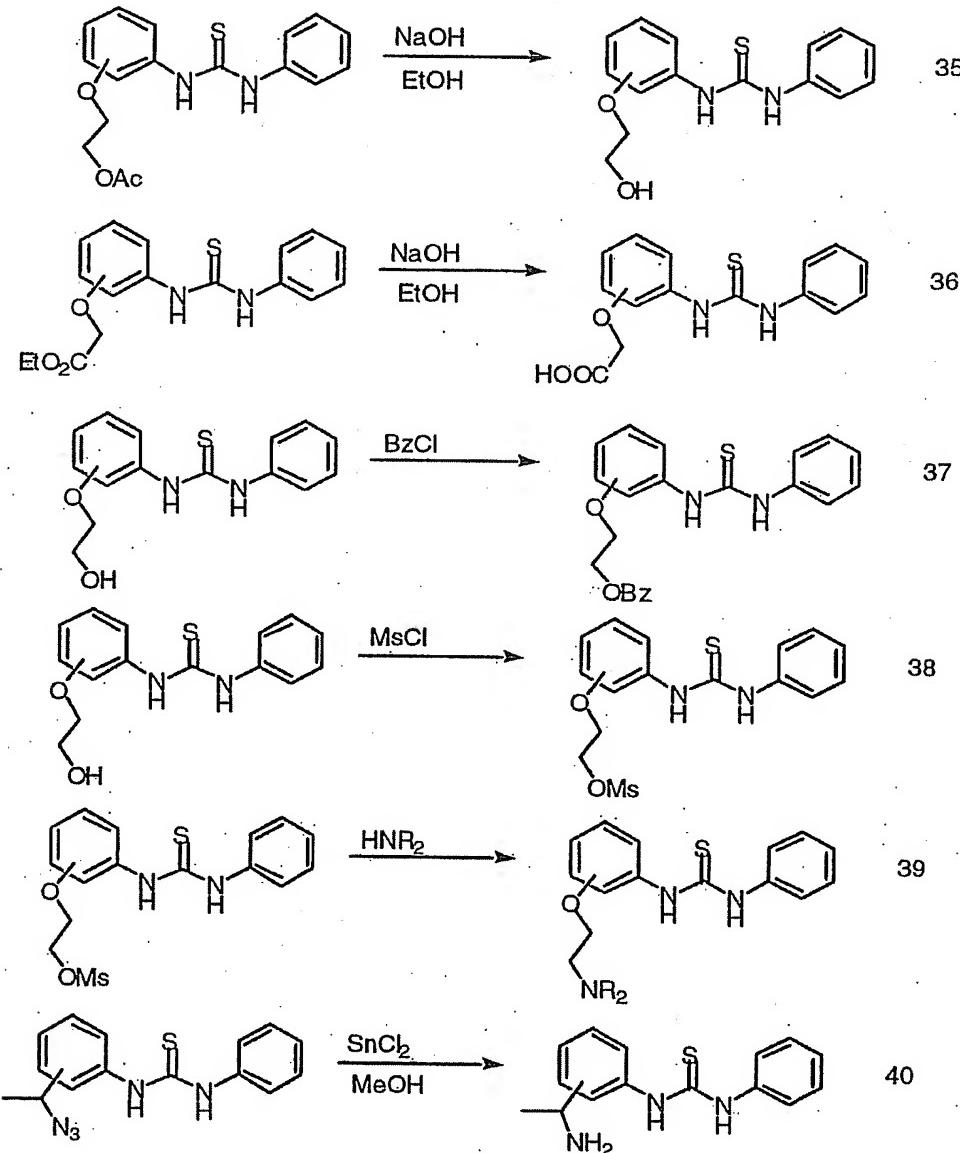


In certain instances, subsequent chemical modification of the final thioureas 1 was required. These methods, Methods 35-39, are summarized below.

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Thioureas 1 wherein at least one substituent of R<sub>1</sub>-R<sub>s</sub> is 1-hydroxyethoxy or  
 5 carboxy-methoxy, R<sub>9</sub>-R<sub>12</sub> and G are defined as above and X equals a bond, may be prepared from the corresponding alkyl esters by alkaline hydrolysis with aqueous sodium or potassium hydroxide in a suitable solvent such as methanol, tetrahydrofuran or mixtures thereof at room temperature in accordance with Methods 35 and 36.

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Thioureas 1 wherein at least one substituent of R<sub>1</sub>-R<sub>5</sub> is 1-acyloxyethoxy or methansulfonyloxyethoxy, R<sub>9</sub>-R<sub>12</sub> and G are defined as above and X equals a bond, may be prepared from the corresponding 1-hydroxyethoxy derivative by acylation with appropriate acylating agents such as benzoic acid chloride or methanesulfonic acid 5 chloride in the presence of a suitable tertiary amine base such as triethylamine or diisopropylethylamine in a suitable solvent such as dichloromethane or the like at room temperature in accordance with Methods 37 and 38.

Thioureas 1 wherein at least one substituent of R<sub>1</sub>-R<sub>5</sub> is 1-aminoethoxy, R<sub>9</sub>-R<sub>12</sub> 10 and G are defined as above and X equals a bond, may be prepared from the corresponding 1-methanesulfonyloxyethoxy derivative by reaction with an appropriate secondary amine such as dimethylamine in a suitable solvent mixture such as tetrahydrofuran and water or the like at room temperature in accordance with Method 39.

15

Thioureas 1 wherein at least one substituent of R<sub>1</sub>-R<sub>5</sub> is 1-aminoalkyl, R<sub>9</sub>-R<sub>12</sub> and G are defined as above and X equals a bond, may be prepared from the corresponding 1-azidoalkyl derivative by reaction with stannous chloride in a suitable solvent such as methanol, ethanol or the like at room temperature in accordance with 20 Method 40.

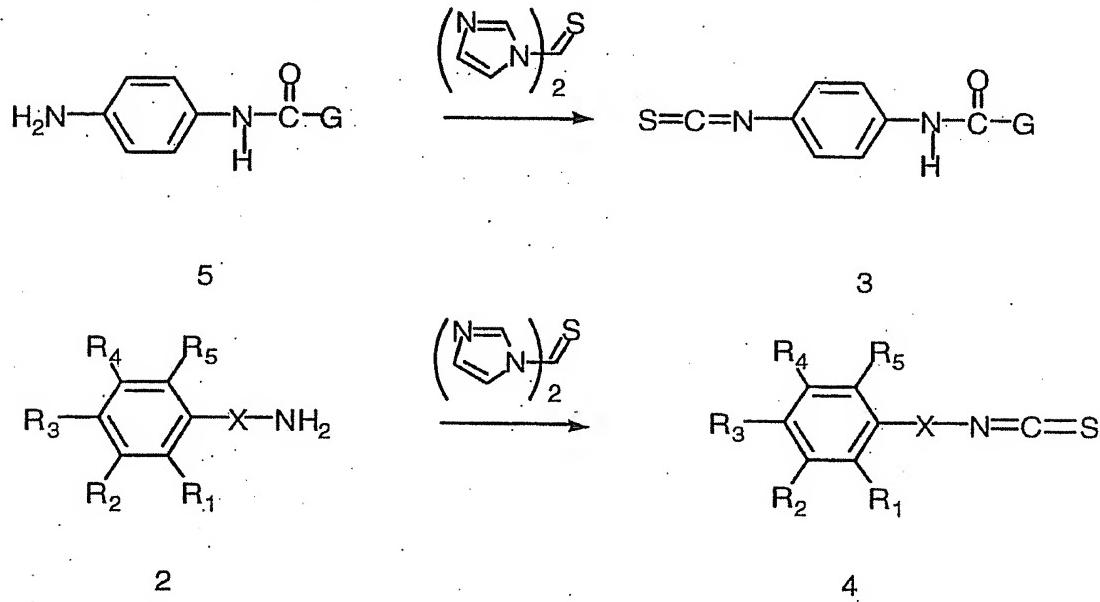
The intermediate isothiocyanates 3 and 4 shown above in Methods 31 and 34 are prepared in accordance with Method 41 (below) essentially according to the procedures of Staab, H.A. and Walther, G. *Justus Liebigs Ann. Chem.* 657, 104 25 (1962)) by reacting appropriately substituted amines 5 or 2, respectively, wherein R<sub>1</sub>-R<sub>5</sub>, R<sub>9</sub>-R<sub>12</sub> and G are described above and X is defined above, with one molar equivalent of 1,1'-thiocarbonyldiimidazole in an appropriate solvent such as dichloromethane and tetrahydrofuran or mixtures thereof.

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### Method 41



5

The intermediates 2 and 5 may be prepared according to the following protocols:

According to Methods 1A-1G, amines 2, wherein R<sub>1</sub>-R<sub>5</sub> are defined above and X is defined above and amines 5, wherein R<sub>9</sub>-R<sub>12</sub> are defined above, may be prepared by reduction of the appropriately substituted nitrobenzenes according to a variety of procedures known to those skilled in the art and described in R. J. Lindsay, Comprehensive Organic Chemistry (ed. Sutherland), Volume 2, Chapter 6.3.1, Aromatic Amines, 1979. Such procedures include the reduction of nitrobenzenes to form anilines upon exposure to:

- a) iron powder and a strong acid, such as hydrochloric acid (Methods 1A) either neat or in alcohol solvent such as methanol or ethanol, at temperatures ranging from room temperature to the refluxing temperature of the solvent, or;

b) iron powder and glacial acetic acid (Method 1B), either neat or in alcohol solvent such as methanol or ethanol, at temperatures ranging from room temperature to the refluxing temperature of the solvent, or;

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- c) iron powder and aqueous ammonium chloride (Method 1C), either neat or in alcohol solvent such as methanol or ethanol, at temperatures ranging from room temperature to the refluxing temperature of the solvent, or;
- d) tin and a strong mineral acid, such as hydrochloric acid (Method 1D), either neat or in alcohol solvent such as methanol or ethanol, at temperatures ranging from room temperature to the refluxing temperature of the solvent, or;
- 5 e) when R<sub>1</sub>-R<sub>5</sub> and R<sub>9</sub>-R<sub>12</sub> are selected from Cl, Br, I, -(OSO<sub>2</sub>)-CF<sub>3</sub>, or -(OSO<sub>2</sub>)-1-(4-methylphenyl), by catalytic reduction such as with hydrogen and palladium on carbon (Method 1E) in an appropriate solvent such as methanol, ethanol, or ethyl acetate, under one or more atmospheres of pressure or;
- 10 f) when R<sub>1</sub>-R<sub>5</sub> and R<sub>9</sub>-R<sub>12</sub> are selected from Cl, Br, I, -(OSO<sub>2</sub>)-CF<sub>3</sub>, or -(OSO<sub>2</sub>)-1-(4-methylphenyl), by catalytic reduction such as with cyclohexene and palladium on carbon (Method 1F) in an appropriate solvent such as methanol or ethanol, at temperatures ranging from room temperature to the refluxing temperature of the solvent, or;
- 15 g) aqueous sodium hydrosulfite in alcohol solvent at temperatures ranging from room temperature to the refluxing temperature of the solvent (Method 1G).

Alternatively, according to Methods 3A-3C, amines 2, wherein R<sub>1</sub>-R<sub>5</sub> are defined above and X is defined above and anilines 5, wherein R<sub>9</sub>-R<sub>12</sub> are defined above, may be prepared by the cleavage of the aniline nitrogen-carbon bond of amide and carbamate derivatives of these anilines according to a variety of procedures known to those skilled in the art and described in Greene, Protective Groups in Organic Synthesis volume 2, Chapter 7, 1991, and references therein. Such

25 procedures include:

- a) the exposure of appropriately substituted arylamino-tert-butyl-carbamates to a strong acid such as trifluoroacetic acid (Method 3A) either neat or in an appropriate solvent such as dichloromethane at temperatures between 0°C and room temperature, or;
- 30 b) the exposure of appropriately substituted arylamino-(2-trimethylsilylethyl)-carbamates to a fluoride ion source such as tetrabutylammonium fluoride or potassium fluoride (Method 3B) in aqueous acetonitrile or tetrahydrofuran or

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mixtures thereof at temperatures ranging from room temperature to the reflux temperature of the solvent, or;

- 5 c) the exposure of appropriately substituted arylamino-trifluoroacetamides to a strong base such as sodium or potassium hydroxide or sodium or potassium carbonate in an alcohol solvent such as methanol or ethanol (Method 3C) at temperatures ranging from room temperature to the reflux temperature of the solvent.

Alternatively, according to Method 11, amines 2, wherein R<sub>1</sub>-R<sub>5</sub> are defined above, and X equals a bond and at least one substituent of R<sub>1</sub>-R<sub>5</sub> is defined as vinyl, may be prepared by the palladium catalyzed coupling of a vinyl trialkyltin reagent, 10 such as tributylvinyltin, with an appropriately substituted bromo- or iodo-aniline, for example 3-chloro-4-iodo-aniline, employing a palladium catalyst, such as tris(dibenzylidineacetone)-bipalladium, and a ligand, such as triphenylarsine, in a suitable solvent such as tetrahydrofuran or N-methylpyrrolidinone, at temperatures ranging from room temperature to the reflux temperature of the solvent, essentially 15 according to the procedures of V. Farina and G.P. Roth in Advances in Metal-Organic Chemistry, Vol. 5, 1-53, 1996 and references therein.

Alternatively, according to Method 42, amines 2, wherein R<sub>1</sub>-R<sub>5</sub> are defined above and X is defined above and at least one substituent of R<sub>2</sub> or R<sub>4</sub> is defined as dialkylamino, may be prepared by the palladium catalyzed amination of an 20 appropriately substituted 3- or 5-bromo- or iodo-aniline, for example 3-amino-5-bromobenzo-trifluoride, by secondary amines under conditions which employ a palladium catalyst, such as bis(dibenzylidineacetone)palladium, and a ligand, such as tri-o-tolylphosphine, and at least two molar equivalents of a strong base, such as lithium bis-(trimethylsilyl)amide in a sealed tube, in a suitable solvent such as 25 tetrahydrofuran or toluene, at temperatures ranging from room temperature to 100 °C, essentially according to the procedures of J.F. Hartwig and J. Louie *Tetrahedron Letters* 36 (21), 3609 (1995).

Alternatively, according to Method 43, amines 2, wherein R<sub>1</sub>-R<sub>5</sub> are defined above and X is defined above and at least one substituent of R<sub>2</sub> or R<sub>4</sub> is defined as 30 alkyl, may be prepared by the palladium catalyzed alkylation of an appropriately substituted 3- or 5-bromo- or iodo-aniline, for example 3-amino-5-bromobenzotrifluoride by alkenes under conditions which employ a palladium catalyst such as [1,1'-bis(diphenylphosphino)ferrocene]palladium(II) chloride-

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dichloromethane complex and in the presence of 9-borabicyclo[3.3.1]nonane and a suitable base such as aqueous sodium hydroxide in a suitable solvent such as tetrahydrofuran or the like at temperatures ranging from room temperature to the reflux temperature of the solvent.

- 5       The acyl and carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C may be prepared by the derivatization of the corresponding amines as described in Methods 2A-2G according to a variety of procedures known to those skilled in the art and described in Greene, Protective Groups in Organic Synthesis volume 2, Chapter 7, 1991, and references therein. Such procedures include:
- 10      a) the reaction of an appropriately substituted amine with di-tert-butyl-dicarbonate (Method 2A) in the presence or absence of one or more molar equivalents of a tertiary amine such as triethylamine or N,N-diisopropylethylamine in a suitable solvent such as acetone, tetrahydrofuran, dimethylformamide, dichloromethane, and the like, at temperatures ranging from room temperature to the reflux 15     temperature of the solvent to produce the corresponding arylamino-tert-butyl-carbamate, or;
- 15      b) the reaction of an appropriately substituted aniline with 1-[2-(trimethylsilyl)ethoxycarbonyl-oxy]benzotriazole (Method 2B) in the presence of a tertiary amine such as triethylamine or diisopropylethylamine in a suitable solvent 20     such as dimethylformamide at room temperature to produce the corresponding arylamino-(2-trimethylsilylethyl)-carbamate, or;
- 20      c) the reaction of an appropriately substituted aniline with a carboxylic acid chloride or acid anhydride (Method 2C) either neat or in an appropriate solvent such as tetrahydrofuran, dimethylformamide, dichloromethane, pyridine and the like, in the presence of one or more molar equivalents of a tertiary amine base such as triethylamine or N,N-diisopropylethyl-amine to produce the 25     corresponding arylaminoamide, or;
- 25      d) the reaction of an apptopriately substituted nitro aniline with a carboxylic acid chloride (Method 2D) in the absence of one or more molar equivalents of a tertiary amine base such as triethylamine or N,N-diisopropylethylamine either neat 30     or in an appropriate solvent such as tetrahydrofuran, 1,4-dioxane and the like at temperatures ranging from room temperature to the reflux temperature of the solvent to produce the corresponding nitro arylaminoamide, or;

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- e) the reaction of an appropriately substituted aniline with a carboxylic acid (Method 2E) in the presence of a coupling agent such as benzotriazole-1-yloxy-tris-(dimethylamino)-phosphonium hexafluorophosphate, 2-(1H-benzotriazole-1-yloxy)-1,1,3,3-tetra-methyluronium hexafluorophosphate, dicyclohexyl carbodiimide and the like and in the presence of a tertiary amine such as triethylamine or diisopropylethylamine in a suitable solvent such as dichloromethane, dimethylformamide and the like, at room temperature to produce the corresponding arylaminoamide, or;
- 5 f) the reaction of an appropriately protected aniline such as an arylamino-tert-butyl-carbamate or the like in which at least one substituent of R<sub>1</sub>-R<sub>12</sub> is defined as -W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z wherein W, Y, and Z are defined as above, with a carboxylic acid anhydride (Method 2F) in the presence of a suitable base such as pyridine in an appropriate such as dichloromethane, dimethylformamide or the like at temperatures ranging from 0°C to room temperature to produce the corresponding 10 carboxylic acid ester, or;
- 15 g) the reaction of an appropriately substituted aniline in which at least one substituent of R<sub>1</sub>-R<sub>5</sub> is defined as hydroxyl with di-tert-butyl-dicarbonate (Method 2G) in the absence of one or more molar equivalents of a tertiary amine such as triethylamine or N,N-diisopropylethylamine in a suitable solvent such as acetone, tetrahydrofuran, dimethylformamide, dichloromethane, and the like, at 20 temperatures ranging from room temperature to the reflux temperature of the solvent to produce the corresponding arylamino-tert-butyl-carbamate.

Nitrobenzene intermediates that are ultimately converted to amines 2 and 5 by methods shown above in Methods 1A-1G may be prepared in accordance with 25 Methods 4A, 4C, 4E-4F.

Referring to Methods 4A, 4C, and 4E-4H, the nitrobenzene intermediates which are ultimately converted into amines 2, R<sub>2</sub> and R<sub>4</sub> are defined above and R<sub>1</sub>, R<sub>3</sub>, and/or R<sub>5</sub> are defined as alkoxy, thioalkoxy, alkylsulfenyl, alkylsulfinyl, and dialkylamino may be prepared by the nucleophilic displacement of appropriately 30 substituted 2-, 4-, and/or 6-fluoro-, chloro-, bromo-, iodo-, trifluoromethylsulfonyl-, or (4-methylphenyl)sulfonyl-substituted nitrobenzenes by methods which include the following:

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- a) reaction of alcohols with appropriately substituted 2- or 4- halo- or sulfonate esters of nitrobenzenes or benzonitriles (Method 4A) either neat or in an appropriate solvent such as tetrahydrofuran, dioxane, acetonitrile, N,N-dimethylformamide or dimethylsulfoxide in the presence or absence of one or more molar equivalents of a base such as sodium carbonate, potassium carbonate, sodium hydroxide, potassium hydroxide, sodium hydride, potassium hydride, or the like, at temperatures ranging from room temperature to the reflux temperature of the solvent;
- b) reactions of preformed sodium, lithium, or potassium phenoxides with appropriately substituted 2- or 4- halo- or sulfonate esters of nitrobenzenes or benzonitriles (Method 4H) either neat or in an appropriate solvent such as tetrahydrofuran, dioxane, acetonitrile, N,N-dimethylformamide or dimethylsulfoxide, at temperatures ranging from room temperature to the reflux temperature of the solvent, or;
- c) reaction of ammonia, primary or secondary amines with appropriately substituted 2- or 4-halo- or sulfonate esters of nitrobenzenes or benzonitriles (Methods 4C,F) either neat or in an appropriate solvent such as tetrahydrofuran, dioxane, acetonitrile, N,N-dimethyl-formamide or dimethylsulfoxide, at temperatures ranging from room temperature to the reflux temperature of the solvent;
- d) reaction of preformed sodium, lithium, or potassium salts of amines with appropriately substituted 2- or 4- halo- or sulfonate esters of nitrobenzenes or benzonitriles (Method 4G) in an appropriate solvent such as tetrahydrofuran at temperatures ranging from 0°C to the reflux temperature of the solvent, or;
- e) reaction of sodium sulfide with appropriately substituted 2- or 4- halo- or sulfonate esters of nitrobenzenes or benzonitriles either neat or in an appropriate solvent such as tetrahydro-furan, dioxane, acetonitrile, N,N-dimethylformainide or dimethylsulfoxide, at temperatures ranging from room temperature to the reflux temperature of the solvent, followed by the addition of an alkyl halide directly to the reaction mixture (Method 4E).
- Alternatively, referring to Methods 5C and 6, the nitrobenzene intermediates which are ultimately converted into amines 2, wherein at least one substituent R<sub>1</sub>-R<sub>5</sub> is defined as alkoxy may be prepared from the corresponding substituted hydroxy-nitrobenzenes by methods which include the following:

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- a) reaction of the hydroxy-nitrobenzene with an alkyl halide or dialkyl sulfonate ester (Method 5C) in the presence of a base, such as potassium carbonate, sodium carbonate, potassium hydroxide, sodium hydroxide, potassium hydride, or sodium hydride, in an appropriate solvent such as acetone, N,N-dimethylformamide, tetrahydrofuran or dimethylsulfoxide at temperatures ranging from room temperature to the reflux temperature of the solvent, or;
- b) reaction of the hydroxy-nitrobenzene with an alkyl alcohol, triphenylphosphine, and a dialkylazodicarboxylate reagent (Method 6), such as diethylazodicarboxylate, in an anhydrous aprotic solvent such as diethyl ether or tetrahydrofuran at temperatures ranging from 0°C to the reflux temperature of the solvent, essentially according to methods described in Mitsunobu, O, Synthesis 1981, 1 and references therein.

In addition, referring to Method 5A and 5E, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein at least one substituent R<sub>1</sub>-R<sub>5</sub> is defined as alkoxy may be prepared the corresponding substituted hydroxy arylamino-tert-butyl-carbamate by reaction with alkyl halides, trifluormethane-sulfonates, 4-methylbenzenesulfonates, dialkylsulfonate, ethylene carbonate and the like in the presence of a suitable base such as potassium carbonate in an appropriate solvent such as acetone, toluene, or N,N-dimethyl-formamide at temperatures ranging from room temperature to the reflux temperature of the solvent.

Alternatively, referring to Methods 7A-G, the nitrobenzene intermediates which are ultimately converted into amines 2, R<sub>1</sub> and/or R<sub>3</sub> is alkoxy, and R<sub>2</sub> and/or R<sub>4</sub> is a halogen, and X equals a bond, may be prepared by standard halogenation reactions which include the following:

- a) reaction of a 2- or 4- hydroxy-nitrobenzene with aqueous sodium hypochlorite (Methods 7A and 7B), at room temperature or;
- b) reaction of a 2-hydroxy-4-methoxy or 2,4-dimethoxynitrobenzene (Method 7C and 7D) with bromine in suitable solvent such as chloroform, dichlormethane, glacial acetic acid or the like in the presence or the absence of silver trifluoroacetate at room temperature, or;

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- c) reaction of a 2,4-dimethoxynitrobenzene (Method 7E) with benzyltrimethylammonium dichloroiodate in the presence of anhydrous zinc chloride in a suitable solvent such as glacial acetic acid, at room temperature or;
- d) reaction of a 2-hydroxy-4-methoxynitrobenzene (Method 7F) with benzyltrimethyl-ammonium dichloroiodate in the presence of sodium bicarbonate in a suitable solvent mixture such as dichloromethane and methanol, at room temperature or;
- e) reaction of a 2,4-dimethoxynitrobenzene (Method 7G) with 3,5-dichloro-1-fluoropyridine triflate in a suitable solvent such as tetrachloroethane, at a temperature ranging from room temperature to the reflux temperature of the solvent.

Referring to Method 8, the nitrobenzene intermediates which are ultimately converted into amines 2, wherein  $R_4 = -CF_3$ , and  $R_1-R_3$  and  $R_5-R_8$  are defined as above and X equals a bond may be prepared from the corresponding substituted 4-iodonitrobenzenes by reaction with trimethyl(trifluoromethyl)silane in the presence of cuprous iodide and potassium fluoride in a suitable solvent such as N,N-dimethylformamide or the like at a temperature ranging from room temperature to the reflux temperature of the solvent in a sealed reaction vessel.

Referring to Methods 19A and 19B, the nitrobenzene intermediates which are ultimately converted into amines 2, wherein  $R_4 = -HNCOCH_2NR_7R_8$  or  $-HNCOCH_2SR_6$ , and  $R_1-R_3$  and  $R_5-R_8$  are defined as above and X equals a bond may be prepared from the corresponding substituted 4-(N-chloroacetyl)-nitroaniline by reaction with either a suitable secondary amine such as dimethylamine, morpholine or the like in a suitable solvent such as tetrahydrofuran and/or water mixtures at temperatures ranging from room temperature to the reflux temperature of the solvent or by reaction with an appropriate thiol in the presence of a suitable base such as sodium or potassium carbonate or the like in a suitable solvent such as tetrahydrofuran, 1,4-dioxane or the like at temperatures ranging from room temperature to the reflux temperature of the solvent.

Referring to Method 25, the nitrobenzene intermediates which are ultimately converted into amines 2, wherein at least one substituent of  $R_1-R_5$  is defined as triflate and X equals a bond may be prepared from the corresponding phenol by reaction with trifluoromethane sulfonic anhydride in the presence of a tertiary amines such as

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triethylamine or diisopropyl-ethylamine or the like in a suitable solvent such as dichloromethane at temperatures ranging from 0°C to room temperature.

- Referring to Methods 9, 9B, and 10, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein at least one substituent R<sub>1</sub>-R<sub>5</sub> is defined as either alkylsulfenyl or alkylsulfinyl, may be prepared by reaction of the appropriate 4-alkylthio acyl-arylamino or carbamoyl arylamino derivative with an appropriate oxidizing agent such as dimethyloxirane or sodium periodate in a suitable solvent mixture such as acetone and dichloromethane or water at room temperature.
- 10 Referring to Method 12, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> is defined as 1-hydroxyethyl and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above and X equals a bond may be prepared by reacting the corresponding 4-vinyl carbamoyl aniline with sodium borohydride in the presence of mercuric acetate in a suitable solvent such as tetrahydrofuran, 1,4-dioxane or the like and water at room temperature.
- 15 Referring to Method 13, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> is defined as 2-hydroxyethyl and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above and X equals a bond, may be prepared by reacting the corresponding 4-vinyl carbamoyl aniline with sodium borohydride in the presence of glacial acetic acid in a suitable solvent such as tetrahydrofuran, 1,4-dioxane or the like at temperatures ranging from 0°C to room temperature.
- 20 Referring to Method 14, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> is defined as 1-azidoethyl and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above and X is defined above may be prepared by reacting the corresponding 4-(1-hydroxyethyl) carbamoyl aniline with hydrazoic acid in the presence of a dialkylazodicarboxylate such as diethylazodicarboxylate and triphenylphosphine in a suitable solvent mixture such as tetrahydrofuran and dichloromethane at temperatures ranging from 0°C to room temperature.
- 25 Referring to Method 15, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> is defined as 3-dimethylaminoprop-1-ynyl and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above

Referring to Method 15, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> is defined as 3-dimethylaminoprop-1-ynyl and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above

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and X is defined above, may be prepared by reacting the corresponding 4-iodocarbamoyl aniline with 1-dimethylamino-2-propyne in a suitable tertiary amine solvent such as triethylamine or diisopropylethylamine in the presence of bis(triphenylphosphine)palladium(II) chloride and cuprous iodide at temperatures 5 ranging from room temperature to the reflux temperature of the solvent.

Referring to Method 16, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> is defined as 3-dimethylaminoacryloyl and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above and X equals a bond, may be prepared by reacting the corresponding 4-(3-dimethylaminoprop-1-ynyl)carbamoyl aniline with a suitable peracid such as 10 3-chloroperoxybenzoic acid in a suitable solvent mixture such as dichloromethane and methanol at temperatures ranging from 0°C to room temperature.

Referring to Methods 17 and 18, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, 15 wherein R<sub>4</sub> is defined as either 4-isoxazol-5-yl or 4-(1H-pyrazol-3-yl) and R<sub>1</sub>-R<sub>3</sub> and R<sub>5</sub> are defined as above and X equals a bond, may be prepared by reacting the corresponding 4-(3-dimethylamino-acryloyl)carbamoyl aniline with either hydroxylamine hydrochloride or hydrazine hydrate in a suitable solvent such as 1,4-dioxane or ethanol and the like at room temperature.

20 Referring to Method 20, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, wherein R<sub>4</sub> = -HNCO<sub>2</sub>Z, and R<sub>1</sub>-R<sub>3</sub>, R<sub>5</sub>, and Z are defined as above and X equals a bond, may be prepared by reacting the corresponding 4-aminocarbamoyl aniline with 1,1-carbonyl-di-(1,2,4)-triazole and an appropriately substituted alcohol in a suitable 25 solvent mixture such as tetrahydrofuran and dichloromethane and the like at temperatures ranging from room temperature to the reflux temperature of the solvent.

Referring to Methods 26 and 30, the carbamoyl amine derivatives utilized as starting materials in Methods 3A-3C which are ultimately converted into amines 2, 30 wherein at least one substituent of R<sub>1</sub>-R<sub>5</sub> is defined as dialkylamino and X is defined above may be prepared by reaction of appropriately substituted aldehydes in the presence of either sodium cyanoboro-hydride or hydrogen gas and 10 % palladium on carbon in a suitable solvent such as water, methanol, tetrahydrofuran mixtures or toluene or the like at room temperature.

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Referring to Methods 27 and 28, amines 2 wherein at least one substituent of R<sub>1</sub>-R<sub>5</sub> is defined as hydroxy and X is defined above can be prepared by reaction of the corresponding ester such as acetate with an appropriate base such as sodium bicarbonate or sodium hydroxide in a suitable solvent mixture such as methanol-water mixtures at temperatures ranging from room temperature to the reflux temperature of the solvent.

Referring to Method 29, amines 2 wherein at least one substituent of R<sub>1</sub>-R<sub>5</sub> is defined as 2-hydroxybenzamido and X is defined above can be prepared by reaction of the corresponding N-(4-aminophenyl)phthalimide with lithium borohydride in an appropriate solvent such as tetrahydrofuran, diethyl ether, or the like at room temperature.

The intermediate amines 2 wherein R<sub>1</sub>-R<sub>5</sub> are defined as above and X equals either -CH<sub>2</sub>- or -(CH<sub>2</sub>)<sub>2</sub>- can be prepared by the following procedures:

- a) reduction of an appropriately substituted benzo- or phenylacetonitrile with borane-dimethylsulfide complex in a suitable solvent such as ethylene glycol dimethyl ether, tetrahydrofuran or the like a temperatures ranging from room temperature to the reflux temperature of the solvent. (Method 44);
11. reduction under one or more atmospheres of hydrogen in the presence of a suitable catalyst such as 5 % or 10 % palladium on carbon and an acid such as 4-methyl-benzenesulfonic acid, hydrochloric acid or the like in a suitable solvent such as ethylene glycol monomethyl ether, ethyl acetate, ethanol or the like at room temperature. (Method 50);
12. reduction with lithium aluminum hydride in a suitable solvent such as tetrahydrofuran or diethyl ether at temperatures ranging from 0°C to room temperature. (Method 51);

The unsaturated nitro precursors which are utilized as starting materials in Method 51 and are ultimately converted to amines 2 wherein R<sub>1</sub>-R<sub>5</sub> are defined as above and X equals -(CH<sub>2</sub>)<sub>2</sub>- can be prepared by reaction of an appropriately substituted benzaldehyde with nitro-methane in the presence of ammonium acetate in a suitable solvent such as acetic acid at temperatures ranging from room temperature to the reflux temperature of the solvent. (Method 53); The benzaldehydes, utilized as starting materials in Method 53, can be prepared by diisobutylaluminum hydride

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reduction of an appropriately substituted benzonitrile. (Method 52) The substituted benzonitriles, utilized as starting materials in Method 52, can be prepared from the corresponding aryl bromide by reaction with copper cyanide in a suitable solvent such as N,N-dimethylformamide at temperatures ranging from room temperature to 5 the reflux temperature of the solvent. (Method 59)

For amines 2, wherein R<sub>1</sub>-R<sub>5</sub> is defined as above and X equals either -O(CH<sub>2</sub>)<sub>2</sub>NH<sub>2</sub> or -S(CH<sub>2</sub>)<sub>2</sub>NH<sub>2</sub>, the requisite nitrile precursors may be prepared by reaction of an appropriately substituted phenol or thiophenol with bromoacetonitrile in the presence of a suitable base such as potassium carbonate in an appropriate 10 solvent such as acetone at room temperature according to Method 49.

Alternatively, for amines 2, wherein R<sub>1</sub>-R<sub>5</sub> are defined as above and X equals -(CH<sub>2</sub>)<sub>3</sub>-, the nitrile precursors can be prepared essentially according to the procedure 15 of Wilk, B. *Synthetic Comm.* 23, 2481 (1993), by reaction of an appropriately substituted phenethanol with acetone cyanohydrin and triphenylphosphine in the presence of a suitable azodicarboxylate such as diethyl azodicarboxylate in an appropriate solvent such as diethyl ether or tetrahydro-furan or the like at temperatures ranging from 0°C to room temperature. (Method 54)

Alternatively, intermediate amines 2 wherein R<sub>1</sub>-R<sub>5</sub> are defined as above and 20 X equals -(CH(CH<sub>3</sub>))- can be prepared by acid or base catalyzed hydrolysis of the corresponding formamide using an appropriate acid catalyst such as 6N hydrochloric acid or a suitable base catalyst such as 5N sodium or potassium hydroxide in an appropriate solvent mixture such as water and methanol or water and ethanol at temperatures ranging from room temperature to the reflux temperature of the solvent. 25 (Method 46)

The formamide precursors utilized as starting materials in Method 46 and which are ultimately converted into amines 2, are prepared according to Method 45 by treatment of an appropriately substituted acetophenone with ammonium formate, formic acid and formamide at temperatures ranging from room temperature to the reflux temperature of the solvent.

30 Alternatively, amines 2 wherein R<sub>1</sub>-R<sub>5</sub> are defined as above and X equals -(CH(CH<sub>3</sub>))- can be prepared by reduction of an appropriately substituted O-methyl oxime in the presence of sodium borohydride and zirconium tetrachloride in a suitable solvent such as tetrahydrofuran or diethyl ether at room temperature Method

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48 essentially according to the procedure of Itsuno, S., Sakurai, Y., Ito, K. *Synthesis* 1988, 995. The requisite O-methyl oximes can be prepared from the corresponding acetophenone by reaction with methoxylamine hydrochloride and pyridine in a suitable solvent such as ethanol or methanol at temperatures ranging from room temperature to the reflux temperature of the solvent. (Method 47)

5      Amines 2 for which R<sub>1</sub>-R<sub>5</sub> are defined as above and X equals -CH(J)- where J is defined as above, can be prepared by reduction of the appropriately substituted ketone by the methods described above (Methods 45, 47, and 48). These requisite ketones, when not commercially available, can be prepared by reaction of a suitably 10 substituted benzaldehyde with an appropriate organometallic reagent such as phenyllithium, isopropylmagnesium bromide or ethylmagnesium bromide or the like in a suitable solvent such as diethyl ether or tetrahydrofuran at temperatures ranging from -78 °C to 0°C. (Method 57) The resulting alcohols can be oxidized to the corresponding ketone with an appropriate oxidizing agent such as chromium trioxide 15 in aqueous sulfuric acid and acetone or pyridinium chlorochromate or pyridum dichromate in an appropriate solvent such as dichloromethane or the like at room temperature. (Method 58)

The intermediate anilines 5 may be prepared as previously described Method 3A. Thus treating phenyl carbamic acid tert-butyl ester 6, wherein X equals a bond 20 and G are described as above, with neat trifluoroacetic acid at room temperature followed by neutralization with aqueous sodium hydroxide affords the desired anilines 5. The requisite carbamic acid esters 6, wherein R<sub>9</sub>-R<sub>12</sub> and G are described as above, are prepared as shown in Method 2C by reaction of substituted acid 25 chlorides, 8, where G is described as above, and 4-aminophenylcarbamic acid tert-butyl esters 7, wherein

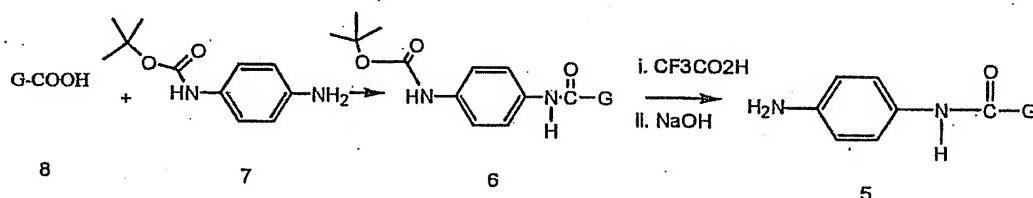
R<sub>9</sub>-R<sub>12</sub> are described above; in the presence of triethylamine in an appropriate solvent such as dichloromethane, dimethylsulfoxide, or dimethylformamide or mixtures thereof. Carboxylic acid chlorides 8 are either commercially available or prepared from the corresponding carboxylic acid by reaction with oxalyl chloride in a 30 suitable solvent such as dichloromethane at room temperature.

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## Method 2C, 3A



Alternatively, carbamic acid esters 6, wherein  $R_9-R_{12}$  and G are described as above, are prepared as shown in Method 2E by reaction of substituted carboxylic acids 8a, wherein G is described as above, and an appropriately substituted 4-aminophenyl carbamic acid tert-butyl esters 7 in the presence of a suitable coupling agent such as benzotriazole-1-yloxy-tris-(dimethylamino)phosphonium hexafluorophosphate, 2-(1H-benzotriazole-1-yloxy)-1,1,3,3-tetramethyluronium hexafluorophosphate, dicyclo-hexyl carbodiimide or the like and in the presence of a tertiary amine base such as triethylamine or diisopropylethylamine in a suitable solvent such as dichloromethane, dimethylformamide and the like, at room temperature to produce the corresponding arylaminoamide.

Carboxylic acids 8a are either commercially available or are prepared according to literature methods. For example, when G is a substituted thiadiazole, the acid is available from the corresponding carboxylic acid ester by reaction with an appropriate base such as sodium or potassium hydroxide in a suitable solvent mixture such as methanol or ethanol and water at room temperature.

Similarly, when G is either substituted or unsubstituted thiazole, substituted or unsubstituted oxazole, substituted or unsubstituted isothiazole or substituted or unsubstituted isoxazole, when not commercially available, the corresponding carboxylic acid 8a is available from the corresponding ethyl or methyl ester by reaction with an appropriate base such as sodium or potassium hydroxide in a suitable solvent mixture such as methanol or ethanol and water at room temperature. These esters are either commercially available or can be prepared according to literature methods.

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When the carboxylic acid ester precursors which are ultimately converted to acids 8a are not commercially available, they may be prepared by methods known in the literature. For example, 5-substituted-1,2,3-thiadiazole-4 carboxylic acid esters may be prepared essentially according to the procedure of Caron, *M J. Org. Chem.*

5 51, 4075 (1986) and Taber, D. F., Ruckle, R. E. *J. Amer. Chem. Soc.* 108, 7686 (1986). Thus, according to Method 21, treatment of a beta-keto carboxylic acid ester with 4-methylbenzenesulfonyl azide or methanesulfonyl azide or the like in the presence of a tertiary amine base such triethylamine or diisopropylethylamine in a suitable solvent such as acetonitrile affords the corresponding diazo-beta-keto  
10 carboxylic acid ester. Treatment of this compound with 2,4-bis(4-methoxyphenyl)-1,3-dithia-2,4-diphosphetane-2,4-disulfide in a suitable solvent such as benzene or toluene or the like at temperatures ranging from room temperature to the reflux temperature of the solvent gives the desired 5-substituted-1,2,3-thiadiazole-4-carboxylic acid ester.

15 Alternatively, 4-substituted-1,2,3-thiadiazole-5-carboxylic acid esters may be prepared essentially according to the procedure of Shafiee, A., Lalezari, I., Yazdani, S., Shahbazian, F. M., Partovi, T. *J. Pharmaceutical Sci.* 65, 304 (1976). Thus, according to Method 22 and 23, reaction of an appropriately substituted beta-keto carboxylic acid ester in a suitable alcoholic solvent such as methanol or ethanol with  
20 an aqueous solution semicarbazide hydrochloride at temperatures ranging from room temperature to the reflux temperature of the solvent in the presence of a suitable base such as pyridine gives corresponding semicarbazone derivative. Treatment of this compound with neat thionyl chloride at 0°C followed by treatment with an excess aqueous solution of sodium bicarbonate affords the corresponding 4-substituted-  
25 1,2,3-thiadiazole-5-carboxylic acid esters.

4-carboalkoxythiazoles are prepared essentially according to the procedure of Schöllkopf, U., Porsch, P., Lau, H. *Liebigs Ann. Chem.* 1444 (1979). Thus, according to Method 55 and 56, reaction of ethyl isocyanoacetate with N,N-dimethylformamide dimethyl acetal in a suitable alcoholic solvent such as ethanol at room temperature gives the corresponding 3-dimethylamino-2-isocyano-acrylic acid ethyl ester. A solution of this compound in a suitable solvent such as tetrahydrofuran is treated with gaseous hydrogen sulfide in the presence of a suitable tertiary amine

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base such as triethylamine or diiso-propylethylamine or the like at room temperature to give the corresponding 4-carboethoxy-thiazole.

Additional appropriately substituted thiazoles may be prepared essentially according to the procedure of Bredenkamp, M. W., Holzafel, C. W., van Zyl, W. J. 5 *Synthetic Comm.* 20, 2235 (1990). Appropriate unsaturated oxazoles are prepared essentially according to the procedure of Henneke, K. H., Schöllkopf, U., Neudecker, T. *Liebigs Ann. Chem.* 1979 (1979). Substituted oxazoles may be prepared essentially according to the procedures of Galeotti, N., Montagne, C., Poncet, J., Jouin, P. *Tetrahedron Lett.* 33, 2807, (1992) and Shin, C., Okumura, K., Ito, A., 10 Nakamura, Y. *Chemistry Lett.* 1305, (1994).

The following specific examples are illustrative, but are not meant to be limiting of the present invention.

#### EXAMPLE 1 (METHOD 1A)

##### 15 4-Methoxy-3-trifluoromethyl- phenylamine

A suspension of 4-methoxy-3-trifluoromethyl-nitrobenzene (2.2 g) and iron powder (1.68 g) in ethanol (35 mL) and water (15 mL) is treated with a solution of concentrated hydrochloric acid (0.42 mL) in ethanol (6 mL) and water (3 mL) and 20 the mixture is heated to reflux for approximately 1 hour. The mixture is then cooled, filtered, and concentrated under reduced pressure. The resulting oil is dissolved in ethyl acetate and extracted three times with 5% aqueous hydrochloric acid. The pooled acidic extracts are then cooled in an ice bath and basified with solid potassium carbonate, then extracted with ethyl acetate. These organic extracts are washed with 25 saturated aqueous sodium chloride, dried over anhydrous sodium sulfate, concentrated under reduced pressure, then passed through a short column of silica gel (ethyl acetate is used as the eluant) to provide the desired compound as an amber oil.

Using the above procedure and appropriate starting materials the following 30 compounds were prepared:

2,6-Dichloro-benzene-1,4-diamine

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3-Chloro-4-methylsulfanyl-phenylamine  
2,6-Dibromo-benzene-1,4-diamine  
3-Chloro-4-trifluoromethyl-phenylamine  
3-Chloro-4-ethylsulfanyl-phenylamine  
4-Methoxy-3-trifluoromethyl-phenylamine  
3,5-Dichloro-4-methoxy-2-methyl-phenylamine  
5-Chloro-2-ethoxy-4-methoxy-phenylamine  
5-Chloro-4-ethoxy-2-methoxy-phenylamine  
5-Iodo-2,4-dimethoxy-phenylamine  
3,5-Diiodo-2,4-dimethoxy-phenylamine  
3,5-Dibromo-2,4-dimethoxy-phenylamine  
5-Chloro-2-methoxy-4-methyl-phenylamine  
2-Chloro-N(1),N(1)-dimethyl-benzene-1,4-diamine  
3-Chloro-4-piperidin-1-yl-phenylamine  
3-Chloro-4-pyrrolidin-1-yl-phenylamine  
N(1)-Benzyl-2-chloro-benzene-1,4-diamine  
3-Chloro-4-(4-methyl-piperazin-1-yl)-phenylamine  
2-Chloro-N(1)-methyl-N(1)-(1-methyl-piperidin-4-yl)-benzene-1,4-diamine  
2-Chloro-N(1)-methyl-N(1)-(1-methyl-pyrrolidin-3-yl)-benzene-1,4-diamine  
2-Chloro-N(1)-methyl-N(1)-phenyl-benzene-1,4-diamine  
N(1)-(1-Benzyl-pyrrolidin-3-yl)-2-chloro-N(1)-methyl-benzene-1,4-diamine  
2-Chloro-N(1)-cyclopentyl-N(1)-methyl-benzene-1,4-diamine  
2-[(4-Amino-2-chloro-phenyl)-(2-hydroxy-ethyl)-amino]-ethanol  
2-Chloro-N(1)-hexyl-N(1)-methyl-benzene-1,4-diamine  
2-Chloro-N(1)-isobutyl-N(1)-methyl-benzene-1,4-diamine  
2-[(4-Amino-2-chloro-phenyl)-methyl-amino]-ethanol  
2-Chloro-N(1)-(3-dimethylamino-propyl)-N(1)-methyl-benzene-1,4-diamine  
2-Chloro-N(1)-(2-dimethylamino-ethyl)-N(1)-methyl-benzene-1,4-diamine  
2-Chloro-N(1)-(2-dimethylamino-ethyl)-benzene-1,4-diamine  
N(1)-(1-Benzyl-piperidin-4-yl)-2-chloro-benzene-1,4-diamine  
2-Chloro-N(1)-(2-methoxy-ethyl)-N(1)-methyl-benzene-1,4-diamine  
2-Chloro-N(1)-(3-dimethylamino-propyl)-benzene-1,4-diamine

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N(1)-(1-Benzyl-pyrrolidin-3-yl)-2-chloro-benzene-1,4-diamine  
3-Chloro-4-(1-methyl-piperidin-4-yloxy)-phenylamine  
3-Chloro-4-(2-dimethylamino-ethoxy)-phenylamine  
3-Chloro-4-(3-dimethylamino-propoxy)-phenylamine  
3-Chloro-4-(1-methyl-pyrrolidin-3-yloxy)-phenylamine  
3-Chloro-4-cyclohexyloxy-phenylamine

**EXAMPLE 2 (METHOD 1B)****4-Bromo-2,4-dimethoxy-phenylamine**

- 5 A suspension of 4-bromo-2,4-dimethoxy-nitrobenzene (0.48 g) and iron powder (0.42 g) in acetic acid (10 mL) and ethanol (10 mL) is heated to 120 °C for approximately 5 hours. The mixture is then cooled, filtered, and concentrated under reduced pressure. Water is added and the mixture is cooled in an ice bath and neutralized with solid potassium carbonate and then extracted with dichloromethane.
- 10 These organic extracts are washed with saturated aqueous sodium chloride, dried over anhydrous sodium sulfate, concentrated under reduced pressure, then chromatographed over silica gel (20% ethyl acetate in hexanes is used as the eluant) to provide the desired compound as an amber oil.

15

**EXAMPLE 3 (METHOD 1C)****(4-Amino-2,6-dichloro-phenoxy)-acetic acid tert-butyl ester**

- A soution of (4-nitro-2,6-dichloro-phenoxy)-acetic acid tert-butyl ester (1 g) in ethanol (17 mL) and water (8.6 mL) is treated with iron powder (0.861 g) and ammonium chloride (86 mg) and the mixture is heated to reflux for approximately 1 hour. The mixture is then filtered and concentrated under reduced pressure. The resulting oil is partitioned between water and ethyl acetate, and the organic phase is then washed with saturated aqueous sodium chloride, dried over anhydrous sodium sulfate, and concentrated under reduced pressure to provide the desired compound as a pale yellow solid.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

4-Chloro-benzene-1,2-diamine  
N-(4-Amino-2-chloro-phenyl)-acetamide  
(4-Amino-2,6-dichloro-phenoxy)-acetonitrile  
(4-Amino-2,6-dichloro-phenoxy)-acetic acid tert-butyl ester  
(2-Amino-4-chloro-5-methoxy-phenoxy)-acetonitrile  
(4-Amino-2-chloro-5-methoxy-phenoxy)-acetic acid methyl ester  
(4-Amino-2-chloro-5-methoxy-phenoxy)-acetic acid tert-butyl ester  
(2-Amino-4-chloro-5-methoxy-phenoxy)-acetic acid tert-butyl ester  
N(1)-Benzyl-4-chloro-5-methoxy-benzene-1,2-diamine  
N-(4-Amino-2-chloro-phenyl)-2-fluoro-benzamide  
N-(4-Amino-5-chloro-2-hydroxy-phenyl)-acetamide  
N-(4-Amino-5-chloro-2-hydroxy-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-2-chloro-phenyl)-amide  
(4-Amino-2-chloro-phenyl)-carbamic acid ethyl ester  
N-(4-Amino-5-chloro-2-methyl-phenyl)-acetamide  
N-(4-Amino-5-chloro-2-methyl-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-5-chloro-2-methyl-phenyl)amide  
N-(4-Amino-3-chloro-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-3-chloro-phenyl)-amide  
N-(4-Amino-2-chloro-phenyl)-2-dimethylamino-acetamide  
N-(4-Amino-2-chloro-phenyl)-2-piperidin-1-yl-acetamide  
N-(4-Amino-2-chloro-phenyl)-2-morpholin-4-yl-acetamide  
N-(4-Amino-2-chloro-phenyl)-methanesulfonamide  
N-(4-Amino-2-chloro-phenyl)-benzamide  
N-(4-Amino-2-chloro-phenyl)-2-diethylamino-acetamide  
N-(4-Amino-2-chloro-phenyl)-2-pyrrolidin-1-yl-acetamide  
N-(4-Amino-2-chloro-phenyl)-2-azepan-1-yl-acetamide  
N-(4-Amino-2-chloro-phenyl)-2-(2-methyl-piperidin-1-yl)-acetamide  
N-(4-Amino-2-chloro-phenyl)-2-(3-methyl-piperidin-1-yl)-acetamide

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**3-Chloro-benzene-1,2-diamine****4-Chloro-N,N-dimethyl-benzene-1,2-diamine****EXAMPLE 4 (METHOD 1D)****3,5-Dichloro-4-phenoxy-phenylamine**

- 5 To a slurry of 3,5-dichloro-4-phenoxy-nitrobenzene (6.1 g) and tin powder (12 g) is added dropwise concentrated hydrochloric acid (60 mL). Ethanol (60mL) is added and the mixture is heated to reflux for approximately 1 hour. The mixture is then cooled in an ice bath and basified by addition of solid sodium hydroxide. The resulting suspension is filtered through a pad of diatomaceous earth and extracted
- 10 three times with ethyl acetate. The combined organic extracts are then washed with saturated aqueous sodium chloride, dried over anhydrous magnesium sulfate, and concentrated under reduced pressure to provide the desired product as a yellow solid. Recrystallization from ethyl acetate-hexanes provided the product as a pale yellow solid.
- 15 Using the above procedure and appropriate starting materials the following compounds were prepared:

**1-Furan-2-yl-ethylamine****3-Chloro-4-isopropoxy-phenylamine****2-Butoxy-5-chloro-4-methoxy-phenylamine****3,5-Dichloro-2-methoxy-4-methyl-phenylamine****2-Benzylxy-5-chloro-4-methoxy-phenylamine****4-Benzylxy-5-chloro-2-methoxy-phenylamine****5-Fluoro-2,4-dimethoxy-phenylamine****(4-Amino-2,6-dichloro-phenoxy)-acetic acid ethyl ester****3,5-Dichloro-4-phenoxy-phenylamine****2-(4-Amino-2-chloro-5-methoxy-phenoxy)-acetamide****(4-Amino-2-chloro-5-methoxy-phenoxy)-acetonitrile****2-(2-Amino-4-chloro-5-methoxy-phenoxy)-ethanol**

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2-(4-Amino-2-chloro-5-methoxy-phenoxy)-ethanol  
4-(4-Amino-2-chloro-5-methoxy-phenoxy)-butyronitrile  
4-Amino-2-chloro-5-methoxy-phenol  
2-Amino-4-chloro-5-methoxy-phenol  
5-Chloro-4-methoxy-2-morpholin-4-yl-phenylamine  
4-Chloro-5-methoxy-N(1),N(1)-dimethyl-benzene-1,2-diamine  
5-Chloro-4-methoxy-2-piperidin-1-yl-phenylamine  
5-Chloro-4-methoxy-2-pyrrolidin-1-yl-phenylamine  
2-Chloro-N(1)-cyclohexyl-N(1)-methyl-benzene-1,4-diamine  
N(2)-Benzyl-4-methoxy-benzene-1,2-diamine  
2-(4-Amino-2-chloro-phenoxy)-ethanol  
2-Chloro-N(1)-cyclohexyl-N(1)-ethyl-benzene-1,4-diamine  
4-Butoxy-3-chloro-phenylamine  
(4-Amino-2-chloro-phenoxy)-acetonitrile  
2-Chloro-N(1)-cyclohexyl-benzene-1,4-diamine  
2-Chloro-N(1),N(1)-dipropyl-benzene-1,4-diamine  
3-Chloro-4-(2,2,2-trifluoro-ethoxy)-phenylamine  
3-Chloro-4-(octahydro-quinolin-1-yl)-phenylamine  
N(1)-Allyl-2-chloro-N(1)-cyclohexyl-benzene-1,4-diamine  
N-(4-Amino-2-methoxy-5-methyl-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-2-methoxy-5-methyl-phenyl)amide  
N-(4-Amino-naphthalen-1-yl)-2-fluoro-benzamide  
3-Chloro-N,N-dimethyl-benzene-1,2-diamine  
3-Chloro-4-propoxy-phenylamine  
3-Iodo-4-methoxy-phenylamine  
3-Chloro-2,4-dimethoxy-aniline  
3-Bromo-4-methoxy-phenylamine  
3-Chloro-4-ethoxy-phenylamine

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**EXAMPLE 5 (Method 1E)**  
**(4-Amino-phenyl)-carbamic acid isobutyl ester**

To a solution of N-(4-Nitro-phenyl)-isobutyramide (2.0 g) in 100 mL ethylene glycol monomethyl ether (100 mL) is added 10% palladium on carbon (275 mg).  
5 The mixture is hydrogenated for 2 hours at room temperature under 30 psi of hydrogen on a Parr hydrogenation apparatus. The catalyst is then removed by filtration through diatomaceous earth and the filtrate is evaporated to dryness under reduced pressure by azeotroping three times with heptane. Trituration of the residue  
10 with heptane provides the desired product as a white solid.

Using the above procedure and appropriate starting materials the following compounds were prepared:

2-Methyl-3H-benzoimidazol-5-ylamine  
N-(4-Amino-phenyl)-formamide  
1H-Benzimidazol-5-ylamine  
(4-Amino-phenyl)-carbamic acid isobutyl ester  
N-(4-Amino-phenyl)-isobutyramide  
N-(5-Amino-pyridin-2-yl)-2-methyl-benzamide  
Furan-2-carboxylic acid (5-amino-pyridin-2-yl)-amide  
N-(5-Amino-pyridin-2-yl)-2-fluoro-benzamide  
[6-(2,2,2-Trifluoro-acetylamo)-pyridin-3-yl]-carbamic acid tert-butyl ester  
N-(5-Amino-pyridin-2-yl)-2,2,2-trifluoro-acetamide  
(4-Amino-benzyl)-carbamic acid tert-butyl ester  
2-(3,5-Bis-trifluoromethyl-phenyl)-ethylamine  
1-tert-Butyl-1H-imidazol-2-ylamine  
3-(3-Dimethylamino-propyl)-5-trifluoromethyl-phenylamine

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**EXAMPLE 6 (METHOD 1F)****N-(4-Amino-2-methylphenyl)-2-fluorobenzamide**

A mixture of 2-fluoro-N-(2-methyl-4-nitrophenyl)benzamide (4.55 g), cyclohexene (30 mL), ethanol (70 mL), water (30 mL) and 10% palladium on charcoal (3 g) is heated at reflux for 30 minutes. The mixture is filtered through diatomaceous earth and concentrated under reduced pressure. The resulting oil is dissolved in 50 mL of ethyl acetate and cooled at 4° C for 12 hours. Filtration provides the product as a tan solid.

10

Using the above procedure and appropriate starting materials the following compounds were prepared:

N-(4-Amino-2-methyl-phenyl)-acetamide  
2-Methyl-benzooxazol-6-ylamine  
N-(4-Amino-3-methoxy-phenyl)-acetamide  
2-Acetylaminio-5-amino-benzoic acid  
N-(4-Amino-phenyl)-acetamide  
[4-(3-Amino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Amino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
N-(4-Amino-2-cyano-phenyl)-acetamide  
N-(4-Amino-2,5-dimethoxy-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-2,5-dimethoxy-phenyl)-amide  
N-(4-Amino-2-cyano-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-2-methoxy-phenyl)-amide  
N-(4-Amino-2-methoxy-phenyl)-2-fluoro-benzamide  
N-(4-Amino-2-methoxy-5-methyl-phenyl)-acetamide  
N-(4-Amino-2-benzoyl-phenyl)-acetamide  
N-(4-Amino-2-benzoyl-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-2-benzoyl-phenyl)-amide  
N-(4-Amino-3-methyl-phenyl)-acetamide  
N-(4-Amino-3-methyl-phenyl)-2-fluoro-benzamide

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Furan-2-carboxylic acid (4-amino-3-methyl-phenyl)-amide  
5-Amino-2-[(2-fluorobenzoyl)amino]-N-phenylbenzamide  
Furan-2-carboxylic acid (4-amino-2-phenylcarbamoyl-phenyl)amide  
N-(4-Amino-naphthalen-1-yl)-acetamide  
Furan-2-carboxylic acid (4-amino-naphthalen-1-yl)-amide  
N-(4-Amino-2-trifluoromethyl-phenyl)-acetamide  
Furan-2-carboxylic acid (4-amino-2-cyano-phenyl)-amide  
Furan-2-carboxylic acid (4-amino-2-trifluoromethyl-phenyl)-amide  
N-(4-Amino-2-methyl-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (4-amino-2-methyl-phenyl)-amide  
5-Amino-2-(2-fluoro-benzoylamino)-benzoic acid  
5-Amino-2-[(furan-2-carbonyl)-amino]-benzoic acid  
N-(4-Amino-2-cyano-phenyl)-2,2,2-trifluoro-acetamide  
N-(4-Amino-3-methyl-phenyl)-2,6-difluoro-benzamide  
N-(4-Amino-3-trifluoromethyl-phenyl)-acetamide  
N-(4-Amino-3-trifluoromethyl-phenyl)-2-fluoro-benzamide  
N-(4-Amino-2-trifluoromethyl-phenyl)-2,2,2-trifluoro-acetamide  
N-(4-Amino-2-methoxy-phenyl)-2,2,2-trifluoro-acetamide  
N-(4-Amino-2-trifluoromethyl-phenyl)-2-fluoro-N-(2-fluoro-benzoyl)-benzamide  
N-(4-Amino-2-trifluoromethyl-phenyl)-2-fluoro-benzamide

**EXAMPLE 7 (METHOD 1G)****N-(4-Amino-2-chlorophenyl)-2-thiomorpholino-4-yl-acetamide**

- 5 A solution of N-(2-chloro-4-nitrophenyl)-2-thiomorpholino-4-yl-acetamide (3.02 g) in ethanol (200 mL) is added to a solution of sodium thiosulfate (12 g) in water (60 mL). The mixture is heated at reflux for 12 hours, cooled and poured into water. The mixture is then extracted with ethyl acetate. The ethyl acetate solution is washed twice with saturated aqueous sodium chloride, dried over anhydrous potassium carbonate, filtered through a pad of diatomaceous earth and concentrated under reduced pressure to give an oil. Toluene is added and the solution chilled to give the desired product as a light orange crystalline solid.
- 10

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Using the above procedure and appropriate starting materials the following compounds were prepared:

N-(4-Amino-2-chloro-phenyl)-2-thiomorpholin-4-yl-acetamide

N-(4-Amino-2-chloro-phenyl)-2-dipropylamino-acetamide

5

#### EXAMPLE 8 (METHOD 2A)

##### (3-Chloro-4-iodo-phenyl)-carbamic acid tert-butyl ester

- To a solution of 3-chloro-4-iodo-aniline (10 g) in tetrahydrofuran (40 mL) containing diiso-propylethylamine (6.9 mL) is added di-tert-butyl-dicarbonate (8.6 g) and the mixture is heated to reflux. After approximately 15 hours additional portions of diisopropylethylamine (6.9 mL) and di-tert-butyl-dicarbonate (21 g) is added and heating is continued for approximately 24 hours. The solution is then cooled, concentrated under reduced pressure, diluted with ethyl acetate, and washed successively three times with 5% aqueous hydrochloric acid then once with saturated aqueous sodium chloride. The solution is dried over anhydrous sodium sulfate then concentrated under reduced pressure to provide the desired crude product as a brown oil. Crystallization is induced by addition of hexanes, and the collected solid material is recrystallized from hexanes to give the desired product as a white solid.
- 10  
15  
20 Using the above procedure and appropriate starting materials the following compounds were prepared:

N'-(4-Nitro-benzoyl)-hydrazinecarboxylic acid tert-butyl ester

(3-Chloro-4-iodo-phenyl)-carbamic acid tert-butyl ester

(4-Bromo-3-chloro-phenyl)-carbamic acid tert-butyl ester

(3-Chloro-4-vinyl-phenyl)-carbamic acid tert-butyl ester

(3-Chloro-4-methylsulfanyl-phenyl)-carbamic acid tert-butyl ester

(4-Amino-3-chloro-phenyl)-carbamic acid tert-butyl ester

(4-Chloro-2-nitro-phenyl)-carbamic acid tert-butyl ester

(3-tert-Butoxycarbonylamino-5-chloro-phenyl)-carbamic acid tert-butyl ester

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(4-Nitro-benzyl)-carbamic acid tert-butyl ester

(3-Bromo-5-trifluoromethyl-phenyl)-carbamic acid tert-butyl ester

(2-Amino-3-chloro-5-trifluoromethyl-phenyl)-carbamic acid tert-butyl ester

**EXAMPLE 9 (METHOD 2B)****(3-Chloro-4-vinyl-phenyl)-carbamic acid2-trimethylsilanyl-ethyl ester**

- 5 To a solution of 3-chloro-4-vinyl-phenylamine (3.4 g) in N,N-dimethylformamide (44 mL) containing diisopropylethylamine (5.8 mL) is added 1-[2-(trimethylsilyl)-ethoxycarbonyl-oxy]benzotriazole (7.1 g) and the mixture is stirred at room temperature under an atmosphere of argon for three days. The solution is then diluted with water and extracted three times with diethyl ether. The combined  
10 organic extracts are washed successively with water, saturated aqueous sodium chloride, dried over anhydrous magnesium sulfate, and concentrated under reduced pressure. The resulting residue is chromatographed over silica gel (10% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a yellow oil.

15

**EXAMPLE 10 (METHOD 2C)****[4-(2-Fluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester**

- To a solution of mono-N-(t-butoxycarbonyl)-1,4-phenylenediamine (1.58 g) and triethylamine (1.50 mL) in 25 mL of dichloromethane is added o-fluorobenzoyl  
20 chloride (1.20 g). A solid formed immediately forms and is filtered and washed with fresh solvent to yield a white solid, 1.90 g.

Using the above procedure and appropriate starting materials the following compounds were prepared:

25

N-(3-Methoxy-4-nitro-phenyl)-acetamide

N-(4-Amino-phenyl)-isobutyrlamide

2,2,2-Trifluoro-N-(2-methoxy-4-nitro-phenyl)-acetamide

[4-(2-Methyl-benzoylamino)-phenyl]-carbamic acid tert-butyl ester

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Acetic acid 2-(4-tert-butoxycarbonylamino-phenylcarbamoyl)-phenyl ester  
[4-(4-Fluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(3-Fluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Fluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Methoxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(3-Methoxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(4-Methoxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2,2-Dimethyl-propionylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Bromo-acetylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2,2,2-Trifluoro-acetylamino)-phenyl]-carbamic acid tert-butyl ester  
(4-Benzoylamino-phenyl)-carbamic acid tert-butyl ester  
(4-Methanesulfonylamino-phenyl)-carbamic acid tert-butyl ester  
(4-Phenylacetylamino-phenyl)-carbamic acid tert-butyl ester  
{4-[(Thiophene-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
[4-(3-Nitro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(3-Acetylamino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(3-Methanesulfonylamino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
Ethyl [3-[[[4-[(1,1-dimethylethoxy)carbonyl]amino]phenyl]amino]carbonyl]-phenyl]carbamate  
[4-(2-Trifluoromethyl-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2,6-Difluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Chloro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Bromo-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Nitro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
{4-[(Benzo[b]thiophene-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Pyridine-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Naphthalene-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Naphthalene-1-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(3-Bromo-thiophene-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Biphenyl-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
N-(4-tert-Butoxycarbonylamino-phenyl)-phthalamic acid  
[4-(2,3-Difluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester

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- [4-(2,5-Difluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2,4-Difluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Acetyl-amino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2-Methanesulfonyl-amino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2,3,4-Trifluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(2,3,4,5,6-Pentafluoro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
N-(4-tert-Butoxycarbonyl-amino-phenyl)-isophthalamic acid methyl ester  
2-Methylsulfanyl-N-[4-(2,2,2-trifluoro-acetyl-amino)-phenyl]-benzamide  
[4-(3-Benzyl-oxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(3-Butoxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
{4-[(5-Difluoromethyl-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Thiophene-3-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(5-Methyl-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(5-Bromo-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
(4-Hexanoyl-amino-phenyl)-carbamic acid tert-butyl ester  
[4-(2-Thiophen-2-yl-acetyl-amino)-phenyl]-carbamic acid tert-butyl ester  
{4-[(Pyridine-3-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(4-Bromo-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Furan-3-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
(4-Phenoxy-carbonyl-amino-phenyl)-carbamic acid tert-butyl ester  
{4-[(Benzo[1,3]dioxole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
[4-(3-Trifluoromethoxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
N-(2,5-Dimethoxy-4-nitro-phenyl)-2-fluoro-benzamide  
{4-[(Furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
[4-(2-Phenoxy-acetyl-amino)-phenyl]-carbamic acid tert-butyl ester  
{4-[(5-Nitro-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(5-Chloro-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(3-Methyl-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
[4-(2-Methoxy-acetyl-amino)-phenyl]-carbamic acid tert-butyl ester  
{4-[(4-Furan-3-yl-[1,2,3]thiadiazole-5-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester

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{4-[(5-tert-Butyl-furan-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
N-[3-Cyano-4-(2,2,2-trifluoro-acetylamino)-phenyl]-2-fluoro-benzamide  
Furan-2-carboxylic acid [3-cyano-4-(2,2,2-trifluoro-acetylamino)-phenyl]amide  
N-(4-Acetylamino-2-cyano-phenyl)-2,2,2-trifluoro-acetamide  
2,2,2-Trifluoro-N-(4-nitro-2-trifluoromethyl-phenyl)-acetamide  
N-(4-Acetylamino-2-trifluoromethyl-phenyl)-2,2,2-trifluoro-acetamide  
2-Fluoro-N-[4-(2,2,2-trifluoro-acetylamino)-3-trifluoromethyl-phenyl]benzamide  
Furan-2-carboxylic acid [4-(2,2,2-trifluoro-acetylamino)-3-trifluoromethyl-phenyl]amide  
2-Fluoro-N-(2-methyl-benzoxazol-6-yl)-benzamide  
4-(2-Fluoro-benzoylamino)-2-hydroxy-benzoic acid phenyl ester  
(4-[(Isoxazole-5-carbonyl)-amino]-phenyl)-carbamic acid tert-butyl ester  
N-(4-Acetylamino-2-methoxy-phenyl)-2,2,2-trifluoro-acetamide  
2-Fluoro-N-[3-methoxy-4-(2,2,2-trifluoro-acetylamino)-phenyl]benzamide  
2-Fluoro-N-(2-fluoro-benzoyl)-N-(4-nitro-2-trifluoromethyl-phenyl)benzamide  
{4-[(1H-Pyrazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(1H-Imidazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(5-Methyl-[1,2,3]thiadiazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(5-Furan-3-yl-[1,2,3]thiadiazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
2,2,2-Trifluoro-N-(5-nitro-pyridin-2-yl)-acetamide  
{4-[(1-Methyl-1H-pyrazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
4-(2-Fluoro-benzoylamino)-2-hydroxy-benzoic acid methyl ester  
N-(5-Chloro-2,4-dimethoxy-phenyl)-oxalamic acid  
Isoxazole-5-carboxylic acid (4-amino-phenyl)-amide  
2-Fluoro-N-(4-nitro-benzyl)-benzamide  
Furan-2-carboxylic acid 4-nitro-benzylamide  
N-[3-Chloro-5-(2,2,2-trifluoro-acetylamino)-phenyl]-2,2,2-trifluoro-acetamide  
N-(3-Amino-5-chloro-phenyl)-2,2,2-trifluoro-acetamide  
[4-(2-Fluoro-benzoylamino)-benzyl]-carbamic acid tert-butyl ester

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[4-(2,6-Difluoro-benzoylamino)-benzyl]-carbamic acid tert-butyl ester  
2,6-Difluoro-N-(4-nitro-benzyl)-benzamide  
{4-[(Furan-2-carbonyl)-amino]-benzyl}-carbamic acid tert-butyl ester  
N-(3-Amino-5-chloro-phenyl)-acetamide  
[4-(3-Chloro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(4-Chloro-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
[4-(4-Dimethylamino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
(4-Benzenesulfonylamino-phenyl)-carbamic acid tert-butyl ester  
[4-(3-Trifluoromethyl-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
2,2,2-Trifluoro-N-(5-nitro-pyrimidin-2-yl)-acetamide

**EXAMPLE 11(METHOD 2D)****2-Chloro-N-(2-chloro-4-nitrophenyl)acetamide**

- 5 A solution of 2-chloro-4-nitroaniline (19.0 g) and chloroacetyl chloride (30 mL) in tetrahydrofuran (150 mL) is heated at reflux for 1 hour. The solution is cooled and concentrated under reduced pressure, giving a wet yellow solid. Ether (250 mL) is added and the yellow solid is collected.
- 10 Using the above procedure and appropriate starting materials the following compounds were prepared:

N-(4-Nitro-3-trifluoromethyl-phenyl)-acetamide  
(2-Chloro-4-nitro-phenyl)-carbamic acid ethyl ester  
2-Acetylaminio-5-nitro-benzoic acid  
Furan-2-carboxylic acid (5-chloro-2-hydroxy-4-nitro-phenyl)-amide  
Furan-2-carboxylic acid (2-methyl-4-nitro-phenyl)-amide  
Furan-2-carboxylic acid (2-methoxy-4-nitro-phenyl)-amide  
N-(2-Chloro-4-nitro-phenyl)-benzamide  
2-Methoxy-N-(4-nitro-phenyl)-acetamide  
N-(4-Nitro-phenyl)-acrylamide  
N-(4-Nitro-phenyl)-isobutyrlamide

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[4-)acryloylamino)-phenyl]carbamic acid tert-butyl ester  
(4-Nitro-phenyl)-carbamic acid isobutyl ester  
[1,2,3]Thiadiazole-4-carboxylic acid (5-nitro-pyridin-2-yl)-amide  
Furan-2-carboxylic acid (5-nitro-pyridin-2-yl)-amide  
2-Fluoro-N-(5-nitro-pyridin-2-yl)-benzamide  
N-(2-Chloro-4-nitro-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (2,5-dimethoxy-4-nitro-phenyl)-amide  
N-(2-Cyano-4-nitro-phenyl)-2-fluoro-benzamide  
2-Fluoro-N-(2-methoxy-4-nitro-phenyl)-benzamide  
2-Methyl-N-(5-nitro-pyridin-2-yl)-benzamide  
Furan-2-carboxylic acid (2-methoxy-5-methyl-4-nitro-phenyl)-amide  
2-Fluoro-N-(2-methoxy-5-methyl-4-nitro-phenyl)-benzamide  
N-(2-Benzoyl-4-nitro-phenyl)-acetamide  
N-(2-Benzoyl-4-nitro-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (2-benzoyl-4-nitro-phenyl)-amide  
N-(3-Methyl-4-nitro-phenyl)-acetamide  
2-Fluoro-N-(3-methyl-4-nitro-phenyl)-benzamide  
Furan-2-carboxylic acid (3-methyl-4-nitro-phenyl)-amide  
2-Acetylamino-5-nitro-N-phenyl-benzamide  
2-[(2-Fluorobenzoyl)amino]-5-nitro-N-phenylbenzamide  
Furan-2-carboxylic acid (4-nitro-2-phenylcarbamoyl-phenyl)-amide  
2-Fluoro-N-(4-nitro-naphthalen-1-yl)-benzamide  
Furan-2-carboxylic acid (4-nitro-naphthalen-1-yl)-amide  
N-(5-Chloro-2-hydroxy-4-nitro-phenyl)-acetamide  
N-(5-Chloro-2-hydroxy-4-nitro-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (2-chloro-4-nitro-phenyl)-amide  
N-(4-Nitro-2-trifluoromethyl-phenyl)-acetamide  
Furan-2-carboxylic acid (2-cyano-4-nitro-phenyl)-amide  
2-Fluoro-N-(4-nitro-2-trifluoromethyl-phenyl)-benzamide  
Furan-2-carboxylic acid (4-nitro-2-trifluoromethyl-phenyl)-amide  
2-Fluoro-N-(2-methyl-4-nitro-phenyl)-benzamide  
N-(5-Chloro-2-methyl-4-nitro-phenyl)-2-fluoro-benzamide

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Furan-2-carboxylic acid (5-chloro-2-methyl-4-nitro-phenyl)-amide  
2-(2-Fluoro-benzoylamino)-5-nitro-benzoic acid  
2-[(Furan-2-carbonyl)-amino]-5-nitro-benzoic acid  
N-(3-Chloro-4-nitro-phenyl)-2-fluoro-benzamide  
Furan-2-carboxylic acid (3-chloro-4-nitro-phenyl)-amide  
2,6-Difluoro-N-(3-methyl-4-nitro-phenyl)-benzamide  
2-Fluoro-N-(4-nitro-3-trifluoromethyl-phenyl)-benzamide  
Furan-2-carboxylic acid (4-nitro-3-trifluoromethyl-phenyl)-amide  
2-Chloro-N-(2-chloro-4-nitro-phenyl)-acetamide  
N-(2-Chloro-4-nitrophenyl)methanesulfonamide  
Furan-2-carboxylic acid [3-methoxy-4-(2,2,2-trifluoro-acetylarnino)-phenyl]-amide  
N-(2-Chloro-4-nitro-phenyl)-2,2,2-trifluoro-acetamide

**EXAMPLE 12**

{4-[(4-Phenyl-[1,2,3]thiadiazole-5-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl

5

A solution of 1-(N-tert-butoxycarbonyl)-1,4-phenylenediamine (0.8 g) and 4-phenyl-[1,2,3]thiadiazole-5-carboxylic acid (0.7 g) in dichloromethane (10 mL) is treated with triethylamine (1.3 mL) and benzotriazole-1-yloxy-tris(dimethylamino)-phosphonium hexa-fluorophosphate (1.6 g). After stirring at room temperature, the reaction is diluted with water and extracted with dichloromethane. The organic layer is washed with 0.5 N hydrochloric acid, saturated sodium bicarbonate, and water then dried over magnesium sulfate, filtered, and concentrated under reduced pressure to give the desired product.

- 10 15 Using the above procedure and appropriate starting materials the following compounds were prepared:

{4-[(1H-Pyrrole-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Pyrazine-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester

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{4-[(5-Methyl-thiophene-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(1-Methyl-1H-pyrrole-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Quinoline-8-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Benzofuran-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Isoquinoline-1-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Quinoline-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Pyridine-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(Isoquinoline-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(1,2,3]Thiadiazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(1H-[1,2,3]Triazole-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
[4-(2-Methylsulfanyl-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
{4-[(Quinoline-4-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(4-Methyl-[1,2,3]thiadiazole-5-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(4-Phenyl-[1,2,3]thiadiazole-5-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
{4-[(1H-Indole-2-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester  
[1,2,3]Thiadiazole-4-carboxylic acid 4-nitro-benzylamide  
{4-[(1,2,3]Thiadiazole-4-carbonyl)-amino]-benzyl}-carbamic acid tert-butyl ester  
Acetic acid 4-(4-tert-butoxycarbonylamino-phenylcarbamoyl)-phenyl ester  
{4-[(Quinoline-6-carbonyl)-amino]-phenyl}-carbamic acid tert-butyl ester

**EXAMPLE 13 (METHOD 2F)**

**Acetic acid 2-(4-tert-butoxycarbonylamino-  
2,6-dichloro-phenoxy)-ethyl ester**

5

A solution of [3,5-dichloro-4-(2-hydroxy-ethoxy)-phenyl]-carbamic acid tert-butyl ester (0.85 g) in pyridine (14 mL) is treated with acetic anhydride (1.24 mL) and the mixture is stirred at room temperature for 15 hours. The solvent is removed under reduced pressure and the residue dissolved in ethyl acetate. This solution is then 10 washed twice with 5% aqueous hydrochloric acid, once with saturated aqueous

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sodium bicarbonate, and then with saturated aqueous sodium chloride. The solution is dried over anhydrous magnesium sulfate and the solvent is removed under reduced pressure to provide the desired product as a colorless oil.

- 5 Using the above procedure and appropriate starting materials the following compounds were prepared:

Phenylsulfanyl-acetonitrile

Acetic acid 2-(4-tert-butoxycarbonylamino-2,6-dichloro-phenoxy)-ethyl ester

#### EXAMPLE 14 (METHOD 2G)

10 (3,5-Dichloro-4-hydroxy-phenyl)-carbamic acid tert-butyl ester

To a solution of 2,6-dichloro-4-amino phenol (9.5 g) in tetrahydrofuran (130 mL) is added di-tert-butyl-dicarbonate (11.7 g) and the mixture is heated to reflux for approximately 15 hours. The solution is then cooled, concentrated under reduced pressure, diluted with ethyl acetate, and washed successively three times with 5% aqueous hydrochloric acid then once with saturated aqueous sodium chloride. The solution is dried over anhydrous sodium sulfate then concentrated under reduced pressure to provide the desired crude product. This material is then triturated with cold dichloromethane to provide the product as a white solid.

20

Using the above procedure and appropriate starting materials the following compound was prepared:

(3-Amino-5-chloro-phenyl)-carbamic acid tert-butyl ester

25

#### EXAMPLE 15 (METHOD 3A)

3,5-Dichloro-4-ethoxy-phenylamine

Trifluoroacetic acid (5 mL) is added to solid (3,5-dichloro-4-ethoxy-phenyl)-carbamic acid tert-butyl ester (0.97 g) and the mixture is stirred for approximately 45

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minutes at room temperature. Water is then added, and the mixture is cooled in an ice bath and basified with solid potassium carbonate. The solution is extracted three times with ethyl acetate and the combined organic phases are washed with saturated aqueous sodium chloride then dried over anhydrous sodium sulfate. Concentration under reduced pressure and recrystallization from hexanes provides the desired product as a pale yellow crystalline solid.

Using the above procedure and appropriate starting materials the following compounds were prepared:

10

- 5-Bromo-pyridin-3-ylamine
- 3-Chloro-4-methanesulfonyl-phenylamine
- N-(4-Amino-phenyl)-2-methyl-benzamide
- Acetic acid 2-(4-amino-phenylcarbamoyl)-phenyl ester
- N-(4-Amino-phenyl)-4-fluoro-benzamide
- N-(4-Amino-phenyl)-3-fluoro-benzamide
- N-(4-Amino-phenyl)-2-fluoro-benzamide
- N-(4-Amino-phenyl)-2-methoxy-benzamide
- N-(4-Amino-phenyl)-3-methoxy-benzamide
- N-(4-Amino-phenyl)-4-methoxy-benzamide
- N-(4-Amino-phenyl)-2-phenyl-acetamide
- N-(4-Amino-phenyl)-2,2-dimethyl-propionamide
- N-(4-Amino-phenyl)-2,2,2-trifluoro-acetamide
- Thiophene-2-carboxylic acid (4-amino-phenyl)-amide
- 1H-Pyrrole-2-carboxylic acid (4-amino-phenyl)-amide
- N-(4-Amino-phenyl)-3-nitro-benzamide
- 3-Acetylamino-N-(4-amino-phenyl)-benzamide
- N-(4-Amino-phenyl)-3-dimethylamino-benzamide
- N-(4-Amino-phenyl)-3-methanesulfonylamino-benzamide
- N-(4-Amino-phenyl)-2-trifluoromethyl-benzamide
- N-(4-Amino-phenyl)-2,6-difluoro-benzamide
- N-(4-Amino-phenyl)-2-chloro-benzamide

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N-(4-Amino-phenyl)-2-bromo-benzamide  
N-(4-Amino-phenyl)-2-nitro-benzamide  
Pyrazine-2-carboxylic acid (4-amino-phenyl)-amide  
5-Methyl-thiophene-2-carboxylic acid (4-amino-phenyl)-amide  
Quinoline-8-carboxylic acid (4-amino-phenyl)-amide  
1-Methyl-1H-pyrrole-2-carboxylic acid (4-amino-phenyl)-amide  
Benzo[b]thiophene-2-carboxylic acid (4-amino-phenyl)-amide  
Benzofuran-2-carboxylic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-isonicotinamide  
Naphthalene-2-carboxylic acid (4-amino-phenyl)-amide  
Naphthalene-1-carboxylic acid (4-amino-phenyl)-amide  
Isoquinoline-1-carboxylic acid (4-amino-phenyl)-amide  
Quinoline-2-carboxylic acid (4-amino-phenyl)-amide  
3,5-Dichloro-4-ethoxy-phenylamine  
4-Butoxy-3,5-dichloro-phenylamine  
Isoquinoline-4-carboxylic acid (4-amino-phenyl)-amide  
[1,2,3]Thiadiazole-4-carboxylic acid (4-amino-phenyl)-amide  
1H-[1,2,3]Triazole-4-carboxylic acid (4-amino-phenyl)-amide  
3-Bromo-thiophene-2-carboxylic acid (4-amino-phenyl)-amide  
4-Benzoyloxy-3,5-dichloro-phenylamine  
2-(4-Amino-2,6-dichloro-phenoxy)-acetamide  
(4-Amino-2,6-dichloro-phenoxy)-acetic acid methyl ester  
[3-(4-Amino-phenylcarbamoyl)-phenyl]-carbamic acid ethyl ester  
2-Amino-N-(4-amino-phenyl)-benzamide  
Biphenyl-2-carboxylic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-2,3-difluoro-benzamide  
N-(4-Amino-phenyl)-2,5-difluoro-benzamide  
N-(4-Amino-phenyl)-2,4-difluoro-benzamide  
2-Acetylamino-N-(4-amino-phenyl)-benzamide  
N-(4-Amino-phenyl)-2-methanesulfonylamino-benzamide  
N-(4-Amino-phenyl)-2,3,4-trifluoro-benzamide  
N-(4-Amino-phenyl)-2,3,4,5,6-pentafluoro-benzamide

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N-(4-Amino-phenyl)-2-methylsulfanyl-benzamide  
Acetic acid 2-(4-amino-2,6-dichloro-phenoxy)-ethyl ester  
N-(4-Amino-phenyl)-isophthalamic acid methyl ester  
N-(4-Amino-phenyl)-3-benzyloxy-benzamide  
N-(4-Amino-phenyl)-3-butoxy-benzamide  
[3-(4-Amino-phenylcarbamoyl)-phenoxy]-acetic acid ethyl ester  
Pyridine-2-carboxylic acid (4-amino-phenyl)-amide  
Quinoline-4-carboxylic acid (4-amino-phenyl)-amide  
5-Methyl-furan-2-carboxylic acid (4-amino-phenyl)-amide  
5-Difluoromethyl-furan-2-carboxylic acid (4-amino-phenyl)-amide  
1H-Indole-2-carboxylic acid (4-amino-phenyl)-amide  
4-Methyl-[1,2,3]thiadiazole-5-carboxylic acid (4-amino-phenyl)-amide  
Thiophene-3-carboxylic acid (4-amino-phenyl)-amide  
5-Chloro-furan-2-carboxylic acid (4-amino-phenyl)-amide  
5-Nitro-furan-2-carboxylic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-2-thiophen-2-yl-acetamide  
3-Methyl-furan-2-carboxylic acid (4-amino-phenyl)-amide  
5-Bromo-furan-2-carboxylic acid (4-amino-phenyl)-amide  
4-Bromo-furan-2-carboxylic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-nicotinamide  
N-(4-Aminophenyl)-3-furancarboxamide  
4-Phenyl-[1,2,3]thiadiazole-5-carboxylic acid (4-amino-phenyl)-amide  
Acetic acid 3-(4-amino-phenylcarbamoyl)-phenyl ester  
Benzo[1,3]dioxole-4-carboxylic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-3-(2-dimethylamino-ethoxy)-benzamide  
N-(4-Amino-phenyl)-3-trifluoromethoxy-benzamide  
N-(4-Amino-phenyl)-3-(2-morpholin-4-yl-ethoxy)-benzamide  
(4-Amino-phenyl)-carbamic acid hexyl ester  
Furan-2-carboxylic acid (4-amino-phenyl)-amide  
(4-Amino-phenyl)-carbamic acid phenyl ester  
Hexanoic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-acrylamide

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N-(4-Amino-phenyl)-2-methoxy-acetamide  
4-Furan-3-yl-[1,2,3]thiadiazole-5-carboxylic acid (4-amino-phenyl)-amide  
5-tert-Butyl-furan-2-carboxylic acid (4-amino-phenyl)-amide  
3-Chloro-4-methanesulfinyl-phenylamine  
5-Methyl-[1,2,3]thiadiazole-4-carboxylic acid (4-amino-phenyl)-amide  
2-(4-Amino-2-chloro-phenyl)-ethanol  
(4-Amino-2-chloro-phenyl)-carbamic acid 2-piperidin-1-yl-ethyl ester  
5-Chloro-N,N-dimethyl-benzene-1,3-diamine  
3-(2-Methyl-butyl)-5-trifluoromethyl-phenylamine  
3-Isobutyl-5-trifluoromethyl-phenylamine  
Furan-2-carboxylic acid (4-aminomethyl-phenyl)-amide  
N-(4-Aminomethyl-phenyl)-2-fluoro-benzamide  
[1,2,3]Thiadiazole-4-carboxylic acid (4-aminomethyl-phenyl)-amide  
N-(4-Aminomethyl-phenyl)-2,6-difluoro-benzamide  
Oxazole-4-carboxylic acid (4-amino-phenyl)-amide  
N-(4-Amino-phenyl)-3-chloro-benzamide  
N-(4-Amino-phenyl)-4-chloro-benzamide  
Acetic acid 4-(4-amino-phenylcarbamoyl)-phenyl ester  
N-(4-Amino-phenyl)-4-dimethylamino-benzamide  
1-(4-Amino-phenyl)-3-(3,5-bis-trifluoromethyl-phenyl)-thiourea  
N-(4-Amino-phenyl)-2-iodo-benzamide  
N-(4-Amino-phenyl)-3-trifluoromethyl-benzamide

**EXAMPLE 16 (METHOD 3B)****1-(4-Amino-2-chloro-phenyl)-ethanol**

- 5 A 1M solution of tetrabutylammonium fluoride in tetrahydrofuran (5.7 mL) is added to [3-chloro-4-(1-hydroxy-ethyl)-phenyl]-carbamic acid 2-trimethylsilanyl-ethyl ester (0.5 g) and the mixture is stirred at room temperature for approximately 3.5 hours. The solution is then concentrated under reduced pressure, dissolved in a 1:1 mixture of ethyl acetate and hexanes, washed successively with water then saturated aqueous sodium chloride, and dried over anhydrous magnesium sulfate. Removal of the
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solvent under reduced pressure followed by chromatography over silica gel (40% ethyl acetate in hexanes is used as the eluant) provides the product as an amber oil.

**EXAMPLE 17 (METHOD 3C)**

5

**N-(4-Amino-3-cyanophenyl)-2-fluoro-benzamide**

Potassium carbonate (5.0 g) is added to a solution of N-[3-cyano-4-(2,2,2-trifluoroacetyl-amino)-phenyl]-2-fluoro-benzamide (2.5 g) in methanol (270 mL) and water (16 mL) and the mixture is refluxed overnight. After removing the solvent

10 under reduced pressure, the residue is suspended in water and extracted with dichloromethane. The organic extracts are pooled, washed with water and then saturated aqueous sodium chloride, dried over anhydrous magnesium sulfate, filtered and concentrated under reduced pressure to provide the desired compound as a white solid.

15

Using the above procedure and appropriate starting materials the following compounds were prepared:

N-(4-Amino-phenyl)-2-methanesulfinyl-benzamide

N-(4-Amino-3-cyano-phenyl)-2-fluoro-benzamide

Furan-2-carboxylic acid (4-amino-3-cyano-phenyl)-amide

N-(4-Amino-3-cyano-phenyl)-acetamide

Furan-2-carboxylic acid (4-amino-3-trifluoromethyl-phenyl)-amide

N-(4-Amino-3-methoxy-phenyl)-acetamide

N-(4-Amino-3-methoxy-phenyl)-2-fluoro-benzamide

Furan-2-carboxylic acid (4-amino-3-methoxy-phenyl)-amide

20

**EXAMPLE 17 (METHOD 4A)****2-Chloro-1-cyclohexyloxy-4-nitro-benzene**

Cyclohexanol (2.9 g) in dimethylsulfoxide (20 mL) is added slowly to a flask containing potassium hydride (0.90 g, pre-washed three times with hexanes) under an

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atmosphere of argon and the solution is stirred for about 1 hour at room temperature. A solution of 3-chloro-4-fluoro-nitrobenzene (1 g) in dimethylsulfoxide (10 mL) is added and the resulting dark red colored solution is then heated for three hours to approximately 100 degrees. The reaction mixture is then cooled, diluted with diethyl ether (300 mL), and washed successively with saturated aqueous ammonium chloride, three times with water, then with saturated aqueous sodium chloride. The organic layer is then dried over anhydrous magnesium sulfate, the solvent is removed under reduced pressure, and the resulting oil is chromatographed over silica gel (5% ethyl acetate in hexanes is used as the eluant) to provide the desired product as an orange solid.

**EXAMPLE 18 (METHOD 4C)****(2-Chloro-4-nitro-phenyl)-methyl-(1-methyl-pyrrolidin-3-yl)-amine**

3-Chloro-4-fluoronitrobenzene (1.0 g) and N,N'-dimethyl-3-aminopyrrolidine (1.72 g) are combined and stirred for approximately 24 hours. The mixture is then diluted with ethyl acetate, washed twice with water and once with saturated sodium chloride, and dried over anhydrous sodium sulfate. After removal of the solvent under reduced pressure the residue is chromatographed over silica gel (pure ethyl acetate followed by pure methanol is used as the eluants) to provide the desired product as a yellow oil.

Using the above procedure and appropriate starting materials the following compounds were prepared:

25

- (2-Chloro-4-nitro-phenyl)-dipropyl-amine
- 1-(2-Chloro-4-nitro-phenyl)-piperidine
- 1-(2-Chloro-4-nitro-phenyl)-pyrrolidine
- (2-Chloro-4-nitro-phenyl)-cyclohexyl-methyl-amine
- Benzyl-(2-chloro-4-nitro-phenyl)-amine
- (2-Chloro-4-nitro-phenyl)-methyl-(1-methyl-piperidin-4-yl)-amine
- (2-Chloro-4-nitro-phenyl)-cyclohexyl-ethyl-amine

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(2-Chloro-4-nitro-phenyl)-cyclohexyl-amine  
(2-Chloro-4-nitro-phenyl)-methyl-(1-methyl-pyrrolidin-3-yl)-amine  
(1-Benzyl-pyrrolidin-3-yl)-(2-chloro-4-nitro-phenyl)-methyl-amine  
(2-Chloro-4-nitro-phenyl)-cyclopentyl-methyl-amine  
1-(2-Chloro-4-nitro-phenyl)-decahydro-quinoline  
Allyl-(2-chloro-4-nitro-phenyl)-cyclohexyl-amine  
2-[(2-Chloro-4-nitro-phenyl)-(2-hydroxy-ethyl)-amino]-ethanol  
(2-Chloro-4-nitro-phenyl)-isobutyl-methyl-amine  
(2-Chloro-4-nitro-phenyl)-hexyl-methyl-amine  
2-[(2-Chloro-4-nitro-phenyl)-methyl-amino]-ethanol  
N-(2-Chloro-4-nitro-phenyl)-N,N',N'-trimethyl-ethane-1,2-diamine  
N-(2-Chloro-4-nitro-phenyl)-N,N',N'-trimethyl-propane-1,3-diamine  
(1-Benzyl-piperidin-4-yl)-(2-chloro-4-nitro-phenyl)-amine  
N-(2-Chloro-4-nitro-phenyl)-N',N'-dimethyl-ethane-1,2-diamine  
N-(2-Chloro-4-nitro-phenyl)-N',N'-dimethyl-propane-1,3-diamine  
(2-Chloro-4-nitro-phenyl)-(2-methoxy-ethyl)-methyl-amine  
(1-Benzyl-pyrrolidin-3-yl)-(2-chloro-4-nitro-phenyl)-amine  
4-Piperidin-1-yl-3-trifluoromethyl-benzonitrile  
4-Dimethylamino-3-trifluoromethyl-benzonitrile  
4-(4-Methyl-piperazin-1-yl)-3-trifluoromethyl-benzonitrile

**EXAMPLE 19 (METHOD 4E)****Butyl-(2-chloro-4-nitro-phenyl)thioether**

- 5 A solution of 3-chloro-4-fluoro-nitrobenzene (5.0 g) and sodium sulfide (2.5 g) in N,N-dimethylformamide (30 mL) is stirred at room temperature for 1 hour and then treated with 1-iodobutane (12.6 g). The solvent is then removed under reduced pressure and the resulting residue is treated with ethyl acetate and hexanes to precipitate the inorganic salts. The solids are removed by filtration and the filtrate is
- 10 reduced under reduced pressure. The resulting residue is then passed through hydrous magnesium silicate using dichloromethane as the eluent to provide the desired compound as a yellow solid.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

- 1-Butylsulfanyl-2-chloro-4-nitro-benzene
- 2-Chloro-1-cyclohexylsulfanyl-4-nitro-benzene
- 2-Chloro-1-ethylsulfanyl-4-nitro-benzene

5

**EXAMPLE 20 (METHOD 4F)****(4-Chloro-5-methoxy-2-nitro-phenyl)-dimethyl-amine**

To a solution of trifluoro-methanesulfonic acid 4-chloro-5-methoxy-2-nitro-phenyl ester (1.0 g) in tetrahydrofuran (2.0 mL) is added dimethylamine (4.0 mL of a 40% aqueous solution) and the mixture is stirred at room temperature for approximately 10 15 hours. The solution is then concentrated under reduced pressure and the residue is dissolved in ethyl acetate and then washed with water. The aqueous layer is extracted once with ethyl acetate and the combined organic layers are washed with saturated aqueous sodium chloride and dried over anhydrous sodium sulfate. The solvent is 15 removed by evaporation under reduced pressure and the residue is triturated with hexanes to provide the desired product as a colorless solid.

20

Using the above procedure and appropriate starting materials the following compounds were prepared:

- (4-Chloro-2-nitro-phenyl)-dimethyl-amine
- 4-(4-Chloro-5-methoxy-2-nitro-phenyl)-morpholine
- (4-Chloro-5-methoxy-2-nitro-phenyl)-dimethyl-amine
- 1-(4-Chloro-5-methoxy-2-nitro-phenyl)-piperidine
- 1-(4-Chloro-5-methoxy-2-nitro-phenyl)-pyrrolidine
- Benzyl-(4-chloro-5-methoxy-2-nitro-phenyl)-amine
- (2-Chloro-6-nitro-phenyl)-dimethyl-amine

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**EXAMPLE 21 (METHOD 4G)**  
**(2-Chloro-4-nitro-phenyl)-methyl-phenyl-amine**

*n*-Butyl lithium (12.3 mL of a 2.5 M solution in hexanes) is added dropwise to a  
5 solution of N-methyl aniline (3.0 g) in tetrahydrofuran (75 mL) at 0°C. The mixture  
is allowed to warm slowly to room temperature and is then re-cooled to 0°C and  
added by cannula to a solution of 3-chloro-4-fluoronitrobenzene (4.9 g) in  
tetrahydrofuran (35 mL) that is kept at -78 °C. Following the addition, the reaction  
mixture is permitted to warm to room temperature over the course of 1 hour, and is  
10 then concentrated under reduced pressure, quenched by addition of saturated aqueous  
ammonium chloride, and extracted three times with ethyl acetate. The pooled  
organic layers are washed three times with 5% aqueous hydrochloric acid, once with  
water, once with saturated aqueous sodium bicarbonate, once with saturated aqueous  
sodium chloride, and then dried over anhydrous magnesium sulfate. Following  
15 removal of the solvent under reduced pressure the residue is chromatographed over  
silica gel (5% diethyl ether in hexanes is used as the eluant) to provide the desired  
product as a clear colorless oil.

**EXAMPLE 22 (METHOD 4H)**

20                   **2,6-Dichloro-4-nitrophenol**

3,4,5-Trichloronitrobenzene (14.86 g) is added to a solution of potassium phenoxide  
(8.66 g) in diethylene glycol (66 mL) and the mixture is heated to 160°C for  
approximately 15 hours. The resulting dark brown solution is cooled to room  
25 temperature, poured onto 100 mL cold water, and extracted twice with diethyl ether.  
The pooled organic extracts are washed with water, 10% aqueous sodium hydroxide,  
and then dried over anhydrous magnesium sulfate. Following removal of the solvent  
under reduced pressure the resulting oil is distilled in a Kugelrohr apparatus to  
provide a yellow oil that solidifies on standing. Recrystallization from ethanol-water  
30 provides the desired product as a pale yellow solid.

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**EXAMPLE 23 (METHOD 5A)****(3,5-Dichloro-4-ethoxy-phenyl)-carbamic acid tert-butyl ester**

- To a solution of (3,5-dichloro-4-hydroxy-phenyl)-carbamic acid tert-butyl ester (1.0 g) and potassium carbonate (1.0 g) in acetone (18 mL) is added ethyl iodide (0.36 mL) and the mixture is stirred for approximately 15 hours at room temperature. The solution is then filtered, concentrated under reduced pressure, and partitioned between ethyl acetate and water. The separated aqueous layer is further extracted twice with ethyl acetate, and the pooled organic extracts are washed successively with 10% aqueous sodium hydroxide, with water, and then dried over anhydrous sodium sulfate. Evaporation of the solvent under reduced pressure gave the desired product as a tan solid.

Using the above procedure and appropriate starting materials the following compounds were prepared:

- (3,5-Dichloro-4-ethoxy-phenyl)-carbamic acid tert-butyl ester
- (4-Butoxy-3,5-dichloro-phenyl)-carbamic acid tert-butyl ester
- (4-Benzylxy-3,5-dichloro-phenyl)-carbamic acid tert-butyl ester
- (4-Carbamoylmethoxy-3,5-dichloro-phenyl)-carbamic acid tert-butyl ester
- [3,5-Dichloro-4-(2-nitrolo-ethoxy)-phenyl]-carbamic acid tert-butyl ester
- (4-tert-Butoxycarbonylamino-2,6-dichloro-phenoxy)-acetic acid methyl ester
- 3-Butoxy-benzoic acid methyl ester
- 3-tert-Butoxycarbonylmethoxy-benzoic acid methyl ester
- 3-Carbamoylmethoxy-benzoic acid methyl ester
- [4-(3-Carbamoylmethoxy-benzoylamino)-phenyl]-carbamic acid tert-butyl ester
- (4-[3-(2-Chloro-ethoxy)-benzoylamino]-phenyl)-carbamic acid tert-butyl ester

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**EXAMPLE 24 (METHOD 5C)****(2,6-Dichloro-4-nitro-phenoxy)-acetic acid tert-butyl ester**

To a solution of 2,6-dichloro-4-nitrophenol (2.5 g) and potassium carbonate (3.3 g) in dimethyl-formamide (50 mL) is added *tert*-butyl-bromoacetate (10 mL) and the mixture is stirred at room temperature for two days. The solution is then poured into 500 mL water, extracted three times with hexanes, and the pooled organic extracts are washed with saturated aqueous ammonium chloride and then dried over anhydrous magnesium sulfate. Evaporation of the solvent under reduced pressure followed by trituration of the resulting oil with hexanes provides the desired product as a white solid.

Using the above procedure and starting materials the following compounds were prepared:

15

- 3-Dimethylamino-1-(4-nitro-phenyl)-propenone
- 2-Chloro-1-isopropoxy-4-nitro-benzene
- 1,3-Dichloro-2-methoxy-4-methyl-5-nitro-benzene
- 1-Chloro-4-ethoxy-2-methoxy-5-nitro-benzene
- 1-Butoxy-4-chloro-5-methoxy-2-nitro-benzene
- 1-Chloro-2-methoxy-5-nitro-4-(phenylmethoxy)benzene (CA name)
- 1-Chloro-4-methoxy-5-nitro-2-(phenylmethoxy)benzene (CA name)
- (2,6-Dichloro-4-nitro-phenoxy)-acetic acid *tert*-butyl ester
- (2,6-Dichloro-4-nitro-phenoxy)-acetonitrile
- 1-Chloro-4-methoxy-2-methyl-5-nitro-benzene
- 2-(4-Chloro-5-methoxy-2-nitro-phenoxy)-acetamide
- 2-(2-Chloro-5-methoxy-4-nitro-phenoxy)-acetamide
- (4-Chloro-5-methoxy-2-nitro-phenoxy)-acetonitrile
- (2-Chloro-5-methoxy-4-nitro-phenoxy)-acetonitrile
- 4-(2-Chloro-5-methoxy-4-nitro-phenoxy)-butyronitrile
- 2-(4-Chloro-5-methoxy-2-nitro-phenoxy)-ethanol
- 2-(2-Chloro-5-methoxy-4-nitro-phenoxy)-ethanol

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(2-Chloro-5-methoxy-4-nitro-phenoxy)-acetic acid tert-butyl ester  
(2-Chloro-5-methoxy-4-nitro-phenoxy)-acetic acid methyl ester  
(4-Chloro-5-methoxy-2-nitro-phenoxy)-acetic acid methyl ester  
(4-Chloro-5-methoxy-2-nitro-phenoxy)-acetic acid tert-butyl ester  
(2-Chloro-4-nitro-phenoxy)-acetonitrile  
1-Butoxy-2-chloro-4-nitro-benzene  
2-Chloro-4-nitro-1-(2,2,2-trifluoro-ethoxy)-benzene  
2-Chloro-4-nitro-1-propoxy-benzene  
2-Chloro-1-ethoxy-4-nitro-benzene  
1,3-Diiodo-2,4-dimethoxy-5-nitro-benzene  
1,3-Dibromo-2,4-dimethoxy-5-nitro-benzene  
3-Chloro-2,4-dimethoxy-nitrobenzene

**EXAMPLE 25 (METHOD 5E)****[3,5-Dichloro-4-(2-hydroxy-ethoxy)-phenyl]-carbamic acid  
tert-butyl ester**

5

To a solution of (3,5-dichloro-4-hydroxy-phenyl)-carbamic acid tert-butyl ester (1.0 g) and potassium carbonate (0.55 g) in toluene (20 mL) is added ethylene carbonate (1.6 g) and the mixture is heated to reflux for 3 hours. To the cooled reaction

10 mixture is added 2.5 M aqueous sodium hydroxide (50 mL), and the separated organic layer is then washed successively with water, then saturated aqueous sodium chloride, and then dried over anhydrous sodium sulfate. The solvent is then removed by evaporation under reduced pressure and the resulting residue is chromatographed over silica gel (30% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a white foam.

15

**EXAMPLE 26 (METHOD 6)****3-(2-Chloro-4-nitro-phenoxy)-1-methyl-pyrrolidine**

To a solution of 2-chloro-4-nitrophenol (2.0 g) in tetrahydrofuran (60 mL) is added  
20 1-methyl-3-pyrrolidinol (2.3 g), triphenyl phosphine (6.0 g), and

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- diethylazodicarboxylate (3.6 mL) and the mixture is stirred at room temperature under an atmosphere of argon for 1.5 hours. The solution is then concentrated under reduced pressure, diluted with ethyl acetate, washed successively with 10% aqueous sodium hydroxide, water, saturated aqueous sodium chloride, and dried over  
5 anhydrous magnesium sulfate. The solvent is removed by evaporation under reduced pressure and the residue is chromatographed over silica gel (ethyl acetate then 10% methanol in dichloromethane is used as the eluant). Pooled product fractions are then recrystallized from hexanes to provide the desired product as a yellow solid.

- 10 Using the above procedure and appropriate starting materials the following compounds were prepared:

4-(2-Chloro-4-nitro-phenoxy)-1-methyl-piperidine  
3-(2-Chloro-4-nitro-phenoxy)-1-methyl-pyrrolidine  
[2-(2-Chloro-4-nitro-phenoxy)-ethyl]-dimethyl-amine  
[3-(2-Chloro-4-nitro-phenoxy)-propyl]-dimethyl-amine

**EXAMPLE 27 (METHOD 7A)**

- 15 **2-Chloro-3-methoxy-6-nitro-phenol**

and

- 2,4-Dichloro-3-methoxy-6-nitro-phenol**

- To a flask containing 3-methoxy-6-nitro-phenol (0.5 g) is added aqueous sodium  
20 hypochlorite (5.25% aqueous solution, 21 mL) and the mixture is stirred at room temperature for approximately 24 hours. The mixture is then cooled in an ice-bath, acidified by addition of concentrated hydrochloric acid, then extracted twice with ethyl acetate. These organic extracts are dried over anhydrous magnesium sulfate, the solvent is removed by evaporation under reduced pressure, and the residue is  
25 chromatographed over silca gel (15% acetone in hexanes is used as the eluant) to provide both the mono- and di-chlorinated products as yellow solids.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

3-Chloro-2-hydroxy-4-methoxy-nitrobenzene

3,5-Dichloro-2-hydroxy-4-methoxy-nitrobenzene

5

**EXAMPLE 28 (METHOD 7B)**

**2,4-Dichloro-3-methyl-6-nitro-phenol**

To a solution of 3-methyl-4-nitro-phenol (5.0 g) in water (150 mL) is added aqueous sodium hypochlorite (5.25% aqueous solution, 230 mL) and the mixture is stirred at room temperature for approximately 15 hours. Additional aqueous sodium hypochlorite (5.25% aqueous solution, 230 mL) is added and the mixture is permitted to stir at room temperature for 2.5 days. The mixture is then cooled in an ice-bath, acidified by addition of concentrated hydrochloric acid, then extracted twice with ethyl acetate. These organic extracts are dried over anhydrous magnesium sulfate, the solvent is removed by evaporation under reduced pressure, and the residue is chromatographed over silca gel (ethyl acetate is used as the eluant) to provide the desired product as a yellow solid. An analytically pure sample is obtained by a single recrystallization from chloroform.

20

**EXAMPLE 29 (METHOD 7C)**

**1-Bromo-2,4-dimethoxy-5-nitro-benzene**

To a solution of 2,4-dimethoxy-nitrobenzene (0.50 g) in chloroform (3 mL) is added dropwise a solution of bromine (0.23 g) in chloroform (1 mL) and the mixture is allowed to stir at room temperature for approximately 15 hours. Additional bromine (0.15 g) in chloroform (1 mL) is added and the reaction is stirred for an additional 4 hours. The mixture is then poured onto 5% aqueous sodium bisulfite and then extracted with chloroform. Pooled organic extracts are then washed successively with 5% aqueous sodium bisulfite then saturated sodium chloride, and then dried over anhydrous sodium sulfate. Removal of the solvent under reduced pressure and

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recrystallization of the residue from toluene provides the desired product as a yellow solid.

**EXAMPLE 30 (METHOD 7D)**

5

**2,4-Dibromo-3-methoxy-6-nitro-phenol**

To a solution of 5-methoxy-2-nitro-phenol (0.25 g) and silver trifluoroacetate (0.49 g) in glacial acetic acid (3 mL) is added dropwise a solution of bromine (1.42 g) in glacial acetic acid (3 mL) and the mixture is stirred at room temperature for 10 approximately 24 hours. The solution is then partitioned between ethyl acetate and water, and the organic layer is washed successively three times with 5% aqueous sodium bisulfite, three times with saturated aqueous sodium bicarbonate, and once with saturated aqueous sodium chloride. The organic layer is then dried over anhydrous magnesium sulfate and the solvent is removed under reduced pressure. 15 The residue is chromatographed over silica gel (20% ethyl acetate in hexanes is used as the eluant) then recrystallized from chloroform to provide the desired dibrominated product as an orange solid.

**EXAMPLE 31 (METHOD 7E)**

20

**1-Iodo-2,4-dimethoxy-5-nitro-benzene**

To a solution of 2,4-dimethoxy-nitrobenzene (1.0 g) in glacial acetic acid (30 mL) is added benzyltrimethylammonium dichloroiodate (1.90 g) and anhydrous zinc chloride (1.0 g) and the mixture is stirred at room temperature under an atmosphere of argon. Additional benzyltrimethylammonium dichloroiodate (0.4 g) is added after 5 hours and again after 24 hours. Additional zinc chloride (0.5 g) and glacial acetic acid (15 mL) is added after 24 hours. The mixture is permitted to stir at room temperature for 3 days and is then filtered, diluted with 5% aqueous sodium bisulfite, and extracted three times with ethyl acetate. These pooled organic extracts are 25 washed successively with 5% aqueous sodium bisulfite, saturated aqueous sodium chloride, then dried over anhydrous magnesium sulfate. After removal of the solvent 30 washed successively with 5% aqueous sodium bisulfite, saturated aqueous sodium chloride, then dried over anhydrous magnesium sulfate. After removal of the solvent

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under reduced pressure the residue is triturated with hexanes to provide the desired product as a pale yellow solid.

**EXAMPLE 32 (METHOD 7F)**

5

**2,4-Diiodo-3-methoxy-6-nitro-phenol**

To a solution of 5-methoxy-2-nitro-phenol (0.25 g) in dichloromethane (15 mL) and methanol (6 mL) is added benzyltrimethylammonium dichloroiodate (1.08 g) and sodium bicarbonate (0.85 g) and the mixture is allowed to stir at room temperature 10 for 24 hours. The solution is then filtered, the filtrate is concentrated under reduced pressure, the residue is dissolved in ethyl acetate and then washed successively with 5% aqueous sodium bicarbonate, 5% aqueous sodium bisulfite, and saturated aqueous sodium chloride. After drying over anhydrous magnesium sulfate the solvent is removed by evaporation under reduced pressure and the residue is recrystallized from 15 toluene to provide the desired product as yellow needles.

**EXAMPLE 33 (METHOD 7G)****1-Fluoro-2,4-dimethoxy-5-nitro-benzene**

20 To a solution of 2,4-dimethoxy-nitrobenzene (1.0 g) in tetrachloroethane (10 mL) is added 3,5-dichloro-1-fluoro-pyridinium triflate (85%, 5.07 g) and the mixture is heated to 120 °C for 5 hours. Additional 3,5-dichloro-1-fluoro-pyridinium triflate (85%, 0.25 g) is added and heating is continued for 1 hour. The solution is then cooled to room temperature and passed over a column of silica gel (hexanes followed 25 by 30% ethyl acetate in hexanes is used as the eluant). Product containing fractions are combined, evaporated under reduced pressure, and the residue is crystallized from hexanes to provide the desired product as a tan solid.

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**EXAMPLE 34 (METHOD 8)****3-Chloro-4-trifluoromethyl-nitrobenzene**

A solution of 3-chloro-4-iodo-nitrobenzene (2.26 g), trimethyl(trifluoromethyl)silane (5.68 g), copper(I) iodide (2.28 g), and potassium fluoride (0.56 g) in N,N-dimethylformamide (8 mL) is heated in a sealed tube to 80 °C for 40 hours. The solution is then cooled, diluted with diethyl ether, filtered through diatomaceous earth, and the filtrate is washed successively with water, saturated aqueous sodium chloride, and then dried over anhydrous sodium sulfate. The solvent is removed under reduced pressure and the residue is chromatographed over silica gel (1% diethyl ether in hexanes followed by 10% ethyl acetate in hexanes is used as the eluant) to provided the desired product as a colorless oil.

**EXAMPLE 35 (METHOD 9)****(3-Chloro-4-methanesulfinyl-phenyl)-carbamic acid tert-butyl ester**

To a solution of (3-chloro-4-thiomethyl-phenyl)-carbamic acid tert-butyl ester (0.89 g) in dichloromethane (15 mL) at 0 °C is added a solution of dimethyldioxirane (~0.11 M in acetone, 34 mL) and the mixture is stirred at 0 °C for 1 hour. The solvent is removed under reduced pressure and the residue is dissolved in dichloromethane, washed with saturated aqueous sodium chloride, and then dried over anhydrous magnesium sulfate. Removal of the solvent under reduced pressure gave the desired product as an orange foam.

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**EXAMPLE 36 (METHOD 9B)****[4-(2-Methylsulfinyl-benzoylamino)-phenyl]-carbamic acid  
tert-butyl ester**

To a solution of 2-methylsulfanyl-N-[4-(2,2,2-trifluoro-acetylamino)-phenyl]-benzamide (234 mg) is added a saturated solution of sodium periodate (5 mL) and the mixture is stirred for 12 hours. The purple mixture is poured into water, extracted

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with ethyl acetate, dried over anhydrous potassium carbonate and evaporated to yield a red solid, 101 mg.

Using the above procedure and appropriate starting materials the following  
5 compounds were prepared:

[4-(2-Methanesulfinyl-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
2-Methanesulfinyl-N-[4-(2,2,2-trifluoro-acetylamino)-phenyl]-benzamide

#### EXAMPLE 37 (METHOD 10)

##### (3-Chloro-4-methanesulfonyl-phenyl)-carbamic acid tert-butyl ester

10

To a solution of (3-chloro-4-thiomethyl-phenyl)-carbamic acid tert-butyl ester (0.90 g) in dichloromethane (30 mL) at 0 °C is added a solution of dimethyldioxirane (~0.11 M in acetone, 80 mL) and the mixture is stirred at 0 °C for 1 hour. The solvent is removed under reduced pressure and the residue is dissolved in  
15 dichloromethane, washed with saturated aqueous sodium chloride, and then dried over anhydrous magnesium sulfate. Removal of the solvent under reduced pressure gives the desired product as an orange foam.

#### EXAMPLE 38 (METHOD 11)

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##### 3-Chloro-4-vinyl-phenylamine

To a deoxygenated solution of 3-chloro-4-iodo-aniline (6.95 g), triphenyl arsine (0.67 g), and tris(dibenzylideneacetone)palladium(0) (0.50 g) in tetrahydrofuran (120 mL) at 50 °C is added tributylvinyltin (10 g) and the mixture is stirred for approximately  
25 15 hours at 50 °C under an atmosphere of argon. The reaction is then cooled, filtered through diatomaceous earth, and the filtrate is evaporated to dryness under reduced pressure. The residue is dissolved in hexanes and then extracted three times with 5% aqueous hydrochloric acid. These aqueous acidic extracts are then basified with solid potassium carbonate and extracted three times with ethyl acetate. These pooled  
30 organic extracts are then washed with saturated aqueous sodium chloride, dried over

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anhydrous magnesium sulfate, and the solvent is removed under reduced pressure. The resulting residue is chromatographed over silica gel (hexanes and then 10% ethyl acetate in hexanes is used as the eluant) to provide the desired product as an amber oil.

5

**EXAMPLE 39 (METHOD 12)****[3-Chloro-4-(1-hydroxy-ethyl)-phenyl]-carbamic acid  
2-trimethylsilanyl-ethyl ester**

- 10 (3-Chloro-4-vinyl-phenyl)-carbamic acid 2-trimethylsilanyl-ethyl ester (2.6 g) is added to a solution of mercuric acetate (3.48 g) in water (7 mL) and tetrahydrofuran (5.25 mL) and the mixture is stirred for approximately 15 hours. 3N Aqueous sodium hydroxide (8.7 mL) and a 0.5 M solution of sodium borohydride in 3N aqueous sodium hydroxide (8.7 mL) are then added and stirring is continued for 6
- 15 hours. The solution is then saturated with sodium chloride and extracted with ethyl acetate. These organic extracts are then washed with saturated aqueous sodium chloride and dried over anhydrous sodium sulfate. Following removal of the solvent under reduced pressure the residue is chromatographed over silica gel (20% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a white
- 20 solid.

**EXAMPLE 40 (METHOD 13)****[3-Chloro-4-(2-hydroxy-ethyl)-phenyl]-carbamic acid tert-butyl ester**

- 25 To a stirring suspension of sodium borohydride (0.45 g) in tetrahydrofuran (13 mL) at 0 °C is added glacial acetic acid (0.75 mL) and the mixture is stirred at 0°C for 1 hour. The solution is then warmed to room temperature and (3-chloro-4-vinyl-phenyl)-carbamic acid 2-trimethylsilanyl-ethyl ester (1.0 g) is added. The reaction is stirred at room temperature for approximately 15 hours and then heated to reflux for
- 30 approximately 20 hours. The mixture is then cooled and solutions of 5 N aqueous sodium hydroxide (0.80 mL) and 30% aqueous hydrogen peroxide (0.56 mL) are added. After stirring for an additional 15 hours the layers are separated, the aqueous

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layer is extracted three times with diethyl ether, and these organic extracts are dried over anhydrous magnesium sulfate. Following removal of the solvent under reduced pressure the residue is chromatographed over silica gel (40% ethyl acetate in hexanes is used as the eluant) to provide the desired product as an amber oil.

5

**EXAMPLE 41 (METHOD 14)****[4-(1-Azido-ethyl)-3-chloro-phenyl]-carbamic acid 2-trimethylsilanyl-ethyl ester**

To a solution of [3-chloro-4-(1-hydroxy-ethyl)-phenyl]-carbamic acid 2-trimethylsilanyl-ethyl ester (1.25 g) in tetrahydrofuran (20 mL) at 0 °C under an atmosphere of argon is added triphenyl-phosphine (2.6 g), hydrazoic acid (approximately 2.5 molar equivalents in dichloromethane, prepared by the method of Fieser and Fieser, *Reagents for Organic Synthesis*, Vol. 1, pg. 446; Wiley, New York) and diethyl azodicarboxylate (1.72 g). After approximately 10 minutes the solvent is removed under reduced pressure and the residue is chromatographed over silica gel (5% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a colorless oil.

**EXAMPLE 42 (METHOD 15)**

20           **[3-Chloro-4-(3-dimethylamino-prop-1-ynyl)-phenyl]-carbamic acid  
tert-butyl ester**

To a deoxygenated solution of (3-chloro-4-iodo-phenyl)-carbamic acid tert-butyl ester (10.0 g) in triethylamine (120 ml) is added 1-dimethylamino-2-propyne (2.82 g), bis(triphenyl-phosphine)palladium(II) chloride (0.4 g), and cuprous iodide (0.054 g). The mixture is stirred at room temperature under an atmosphere of argon for approximately 6 hours and is then heated briefly (ca. 10 minutes) to 60°C. The reaction mixture is then cooled, filtered through diatomaceous earth, and the solvent is removed by evaporation under reduced pressure. The residue is dissolved in ethyl acetate, washed three times with water, once with saturated aqueous sodium chloride, and dried over anhydrous magnesium sulfate. The solvent is removed by evaporation under reduced pressure, and the residue is chromatographed over silica gel (80%

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ethyl acetate in hexanes is used as the eluant) to give the purified product as an amber oil that solidified on standing.

- Using the above procedure and appropriate starting materials the following  
5 compounds were prepared:

[3-Chloro-4-(3-dimethylamino-prop-1-ynyl)-phenyl]-carbamic acid tert-butyl ester  
[3-(4-Methoxy-phenyl)-prop-2-ynyl]-dimethyl-amine  
4-(3-Dimethylamino-prop-1-ynyl)-benzonitrile  
Dimethyl-[3-(4-nitro-phenyl)-prop-2-ynyl]-amine

#### EXAMPLE 43 (METHOD 16)

[3-Chloro-4-(3-dimethylamino-acryloyl)-phenyl]-carbamic acid tert-butyl ester

To an ice cold solution of [3-chloro-4-(3-dimethylamino-prop-1-ynyl)-phenyl]-carbamic acid tert-butyl ester (4.0 g) in dichloromethane (30 ml) is added in small portions 3-chloroperoxybenzoic acid (2.34 g). After the reaction is stirred at 0°C for 20 minutes, the mixture is passed over twenty weight equivalents of basic alumina (Brockman Grade I, 150 mesh) and the N-oxide is eluted using a solution of 5% methanol in dichloromethane. All fractions containing the desired amine N-oxide were combined and evaporated to near dryness under reduced pressure. The residue is treated successively three times with small portions of methanol (ca. 50 ml) followed by evaporation to near dryness under reduced pressure, and the volume of the solution is adjusted to 250 mL by addition of methanol. The methanolic solution of the N-oxide is then heated to reflux for approximately 15 hours, then cooled, and the solvent is evaporated to dryness under reduced pressure. The residue is purified by chromatography over silica gel (80% ethyl acetate in hexanes is used as the eluant) to give the desired product as a pale yellow solid.

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**EXAMPLE 44 (METHOD 17)****(3-Chloro-4-isoxazol-5-yl-phenyl)-carbamic acid tert-butyl ester**

A solution of [3-chloro-4-(3-dimethylamino-acryloyl)-phenyl]-carbamic acid tert-butyl ester (270 mg) in dioxane (3 ml) is treated with hydroxylamine hydrochloride (122 mg) and the mixture is stirred at room temperature for 10 days. The mixture is diluted with ethyl acetate, washed successively with water, 5% aqueous sodium bicarbonate, saturated aqueous sodium chloride, and then dried over anhydrous magnesium sulfate. The solvent is removed by evaporation under reduced pressure and the resulting residue is chromatographed over silica gel (33% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a colorless solid.

**EXAMPLE 45 (METHOD 18)****[3-Chloro-4-(1H-pyrazol-3-yl)-phenyl]-carbamic acid tert-butyl ester**

A solution of [3-chloro-4-(3-dimethylamino-acryloyl)-phenyl]-carbamic acid tert-butyl ester (250 mg) in ethanol (1.25 ml) is treated with hydrazine hydrate (0.25 ml) and the mixture is stirred at room temperature for 3 hours. The mixture is then diluted with 30 mL of diethyl ether, washed three times with water, once with saturated aqueous sodium chloride, and dried over anhydrous magnesium sulfate. The solvent is removed by evaporation under reduced pressure and the resulting residue is chromatographed over silica gel (67% ethyl acetate in hexanes is used as the eluant) to provide the desired product as an oil.

**EXAMPLE 46 (METHOD 19A)****N-(2-Chloro-4-nitrophenyl)-2-thiomorpholino-4-yl-acetamide**

To a solution N-(chloroacetyl)-2-chloro-4-nitroaniline (3.80 g) in tetrahydrofuran (50 mL) is added thiomorpholine (10 mL) and the solution allowed to stand for 1 hour. This reaction mixture is poured into water a pale yellow solid is collected and then recrystallized from hot 2-propanol to give a pale yellow crystalline solid.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

(4-{2-[Bis-(2-hydroxy-ethyl)-amino]-acetyl amino}-phenyl)-carbamic acid tert-butyl ester

[4-(2-Dimethylamino-acetyl amino)-phenyl]-carbamic acid tert-butyl ester

{4-[3-(2-Dimethylamino-ethoxy)-benzoyl amino]-phenyl}-carbamic acid tert-butyl ester

{4-[3-(2-Morpholin-4-yl-ethoxy)-benzoyl amino]-phenyl}-carbamic acid tert-butyl ester

N-(2-Chloro-4-nitro-phenyl)-2-dimethylamino-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-piperidin-1-yl-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-morpholin-4-yl-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-dipropylamino-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-thiomorpholin-4-yl-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-diethylamino-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-pyrrolidin-1-yl-acetamide

2-Azepan-1-yl-N-(2-chloro-4-nitro-phenyl)-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-(2-methyl-piperidin-1-yl)-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-(3-methyl-piperidin-1-yl)-acetamide

N-(2-Chloro-4-nitro-phenyl)-2-(4-methyl-piperidin-1-yl)-acetamide

5

#### EXAMPLE 47 (METHOD 19B)

##### N-(2-Chloro-4-nitrophenyl)-2-(2-dimethylaminoethylsulfanyl)acetamide

To a solution of N-(chloroacetyl)-2-chloro-4-nitroaniline (3.01 g) in N,N-dimethylformamide (100 mL) is added powdered sodium carbonate (6.0 g) and 2-dimethylaminoethanethiol hydrochloride (6.0 g). The mixture is stirred for 1 hour at 10 25° C, poured into water and extracted into ethyl acetate. The ethyl acetate solution is dried over anhydrous potassium carbonate and concentrated under reduced pressure to give an oil. The oil is crystallized from toluene-hexanes (3:1) to yield a pale yellow crystalline solid.

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**EXAMPLE 48 (METHOD 20)**

**(4-tert-butoxycarbonylamino-2-chloro-phenyl)-carbamic acid 2-**

**piperidin-1-yl-ethyl ester**

- 5 To a suspension of 1,1-carbonyl-di-(1,2,4)-triazole (4.0 g) in dichloromethane (40 mL) is added a solution of (4-amino-3-chloro-phenyl) carbamic acid tert-butyl ester (5.0 g) in dichloromethane (45 mL) dropwise over 20 minutes. The reaction is stirred at room temperature for 30 minutes at which point a precipitate forms. To this mixture is added piperidineethanol (6.6 mL) and tetra-hydrofuran (20 mL) is
- 10 added to maintain homogeneity. After heating at reflux overnight the reaction is cooled and then poured into water, the organic layer separated and then washed with saturated aqueous sodium chloride. The solution is dried over anhydrous sodium sulfate, filtered and concentrated under reduced pressure to a crude oil that is purified by chromatography over silica gel (5% methanol in dichloromethane is used as the eluant) to give the desired product as a white foam.
- 15

**EXAMPLE 49**

**5-Phenyl-[1,2,3]thiadiazole-4-carboxylic acid methyl ester**

- 20 A solution of ethyl benzoylacetate (1.1 g) in acetonitrile (10 mL) is treated with 4-methylbenzenesulfonyl azide (1.3 g) and triethylamine (1.6 g). After stirring overnight at room temperature, the reaction is concentrated under reduced pressure and the resulting crude product is dissolved in ethyl acetate and washed with 1N sodium hydroxide. The organic layer is then dried over anhydrous magnesium sulfate, filtered and concentrated under reduced pressure to yield a yellow oil. This oil is taken into dichloromethane and filtered through a pad of hydrous magnesium silicate, eluting with dichloromethane to give the partially purified diazoketone as a colorless oil. A sample of the diazoketone from above (1.2 g) is dissolved in toluene (25 mL) and treated with 2,4-bis(4-methoxyphenyl)-1,3-dithia-2,4-diphosphetane-2,4-disulfide (2.8 g) and the reaction is heated to reflux. After 3 hours, the reaction is cooled to room temperature, loaded onto a pad of silica gel and eluted with dichloromethane. After removing the solvent under reduced pressure, the resulting
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- 30

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oil is purified by chromatography over silica gel (30% diethyl ether in petroleum ether is used as the eluant) and then recrystallized from hexanes to give the desired product as pale yellow needles.

- 5 Using the above procedure and appropriate starting materials the following compound was prepared:

5-Phenyl-[1,2,3]thiadiazole-4-carboxylic acid ethyl ester

5-Methyl-[1,2,3]thiadiazole-4-carboxylic acid methyl ester

#### EXAMPLE 50

10 Ethyl benzoylacetate semicarbazide

Ethyl benzoylacetate (5.0 g) is dissolved in methanol (10 mL) and added rapidly to a hot solution of semicarbazide hydrochloride (29 g) in water (130 mL). To this is added pyridine (4.1 g) and after heating to reflux for 5 minutes, the reaction mixture 15 is cooled to -20 °C overnight. The resulting solid semicarbazone is collected by filtration, washed with water and then diethyl ether to give the desired product as white crystals.

- 20 Using the above procedure and appropriate starting materials the following compound was prepared:

Ethyl (Z)-3-[(aminocarbonyl)hydrazone]-4,4,4-trifluorobutanoate

3-[(Z)-2-(Aminocarbonyl)hydrazone]-3-phenylpropanoic acid ethyl ester

3-[(E)-2-(Aminocarbonyl)hydrazone]-3-(3-furyl)propanoic acid ethyl ester

#### EXAMPLE 51

25 5-Phenyl-[1,2,3]thiadiazole-5-carboxylic acid ethyl ester

A solution of ethyl benzoylacetate semicarbazone (2.5 g) in neat thionyl chloride (5 mL) is stirred at 0 °C for 1 hour. Dichloromethane is then added (25 mL), the excess

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thionyl chloride is destroyed slowly with saturated aqueous sodium bicarbonate. The precipitate which forms on quenching is removed by filtration and the filtrate is extracted with dichloromethane. Pooled organic extracts are dried over anhydrous magnesium sulfate, filtered and concentrated under reduced pressure.

- 5 Chromatography over silica gel (50% hexanes in dichloromethane is used as the eluant) affords the desired product as a colorless oil.

Using the above procedure and appropriate starting materials the following compounds were prepared:

10

- 4-Methyl-[1,2,3]thiadiazole-5-carboxylic acid methyl ester  
4-Phenyl-[1,2,3]thiadiazole-5-carboxylic acid ethyl ester  
4-Furan-3-yl-[1,2,3]thiadiazole-5-carboxylic acid ethyl ester

#### EXAMPLE 52

##### 4-Methyl-[1,2,3]thiadiazole-5-carboxylic acid

- 15 4-Methyl-[1,2,3]thiadiazole-5-carboxylic acid methyl ester (1.7 g) is dissolved in methanol (15 mL) and treated with 1N sodium hydroxide (16 mL). After stirring at room temperature for 1 hour, the reaction is treated with concentrated hydrochloric acid (1.5 mL) and concentrated under reduced pressure. The resulting turbid aqueous layer is extracted twice with diethyl ether and the pooled organic layers are dried over anhydrous magnesium sulfate, filtered and concentrated under reduced pressure to give the desired compound as a white powder.
- 20

Using the above procedure and appropriate starting materials the following compounds were prepared:

25

- 3-Ethoxycarbonylmethoxy-benzoic acid  
5-Furan-3-yl-[1,2,3]thiadiazole-4-carboxylic acid  
Thiazole-4-carboxylic acid  
4-Methyl-[1,2,3]thiadiazole-5-carboxylic acid  
5-Methyl-[1,2,3]thiadiazole-4-carboxylic acid

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**EXAMPLE 53 (METHOD 25)****Trifluoro-methanesulfonic acid 4-chloro-5-methoxy-2-nitro-phenyl ester**

5. To a solution of 4-chloro-5-methoxy-2-nitro-phenol (6.5 g) in dichloromethane (150 mL) at 0 °C under an atmosphere of argon is added triethylamine (10 g) and then a solution of trifluoro-methanesulfonic anhydride (13.5 g) in dichloromethane (30 mL). The solution is stirred at 0 °C for 10 minutes, and is then diluted with dichloromethane and washed successively with saturated aqueous sodium bicarbonate and saturated aqueous sodium chloride. After drying over anhydrous sodium sulfate the solvent is removed by evaporation under reduced pressure and the residue is dissolved in a solution of 20% dichloromethane in hexanes and passed through a short column of hydrous magnesium silicate (20% dichloromethane in hexanes is used as the eluant). Product containing fractions are pooled and the solvents removed by evaporation under reduced pressure to give the desired product as a yellow oil.
- 10
- 15

Using the above procedure and appropriate starting materials the following compounds were prepared:

Trifluoro-methanesulfonic acid 4-chloro-5-methoxy-2-nitro-phenyl ester

Trifluoro-methane sulfonic acid 4-chloro-2-nitro-phenyl ester

Trifluoro-methanesulfonic acid 2-chloro-6-nitro-phenyl ester

20

**EXAMPLE 54 (METHOD 26)****[4-(3-Dimethylamino-benzoylamino)-phenyl]-carbamic acid t-butyl ester**

- 25
- A solution of [4-(3-amino-benzoylamino)-phenyl]-carbamic acid t-butyl ester (505 mg), sodium cyanoborohydride (250 mg), acetic acid (3 drops) and 40 % aqueous formaldehyde (4 mL) in 1:2 tetrahydrofuran-methanol (15 mL) is stirred for 15 minutes, and then poured into saturated aqueous sodium bicarbonate and extracted into ethyl acetate. The ethyl acetate solution is dried over anhydrous potassium

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carbonate and concentrated under reduced pressure to give a solid which is recrystallized from acetonitrile to provide a pale pink crystalline solid.

Using the above procedure and appropriate starting materials the following  
5 compounds were prepared:

[4-(3-Dimethylamino-benzoylamino)-phenyl]-carbamic acid tert-butyl ester  
(3-Bromo-5-trifluoromethyl-phenyl)-dimethyl-amine  
N-(3-Chloro-5-dimethylamino-phenyl)-acetamide

#### EXAMPLE 55 (METHOD 27)

N-(4-Aminophenyl)-2-hydroxybenzamide

10

To a solution of 2-(4-aminophenylcarbamoyl) phenyl acetate (580 mg) in methanol (10 mL) is added saturated sodium bicarbonate (2 mL) and water (3 mL). The mixture is heated at 80° C for 30 minutes, then poured into half-saturated aqueous sodium chloride and extracted with ethyl acetate. The ethyl acetate solution is dried over anhydrous sodium sulfate and concentrated under reduced pressure to give an oil which is then triturated with diethyl ether to provide the desired product as a white solid.  
15

#### EXAMPLE 56 (METHOD 28)

20 [4-(3-(Hydroxybenzoylamino)phenyl]carbamic acid t-butyl ester

To a solution of 3-(4-aminophenylcarbamoyl) phenyl acetate (4.34 g) in methanol (75 mL) is added 0.1 N aqueous sodium hydroxide (25 mL) and tetrahydrofuran (25 mL). This solution is heated at 40° C for 30 minutes, then cooled, poured into 1 M hydrochloric acid and extracted with ethyl acetate. The ethyl acetate solution is dried over anhydrous sodium sulfate and concentrated under reduced pressure to give a white solid, which is further purified by trituration with diethyl ether.  
25

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**EXAMPLE 57 (METHOD 29)****N-(4-Aminophenyl)-2-hydroxymethylbenzamide**

To a solution of N-(4-aminophenyl)phthalimide (332 mg) in tetrahydrofuran (4 mL)  
5 is added lithium borohydride (1.0 g) and the mixture is stirred for 1 hour at 25° C.  
The mixture is poured into water and extracted into ethyl acetate. The ethyl acetate  
solution is dried over anhydrous sodium sulfate and concentrated under reduced  
pressure to give a white foam, which when triturated with diethyl ether provides the  
desired product as a white powder.

10

**EXAMPLE 58 (METHOD 30)****(3-Chloro-5-dimethylamino-phenyl)-carbamic acid tert-butyl ester**

To a solution of (3-amino-5-chloro-phenyl)-carbamic acid tert-butyl ester (0.32 g) in  
15 toluene (10 mL) is added aqueous formaldehyde (37%, 1.5 mL) then 10% palladium  
on carbon (0.50 g) and the mixture is stirred under an atmosphere of hydrogen for  
approximately 15 hours. The solution is then filtered through diatomaceous earth and  
the filtrate is concentrated under reduced pressure. The residue is chromatographed  
over silica gel (50% dichloromethane in hexanes is used as the eluant) to provide the  
20 desired product as a white solid.

**EXAMPLE 59 (METHOD 35)****N-(4-{3-[3,5-Dichloro-4-(2-hydroxy-ethoxy)-phenyl]-thioureido}-  
phenyl)-acetamide**

25

To a solution of acetic acid 2-{4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichloro-  
phenoxy}-ethyl ester (0.16 g) in a 1:1 mixture of tetrahydrofuran and methanol (2.5  
mL) is added 1N aqueous sodium hydroxide (1 mL) and the mixture is stirred for  
approximately 2 hours at room temperature. The solution is then poured into 2 M  
30 aqueous hydrochloric acid (3 mL), extracted into ethyl acetate, and the extracts are  
dried over anhydrous sodium sulfate. The solvent is removed by evaporation under

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reduced pressure and the residue is triturated with diethyl ether to provide the desired product as a white solid.

**EXAMPLE 60 (METHOD 36)**

5      {4-[3-(4-Acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetic acid

To a solution of {4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetic acid ethyl ester (0.29 g) in a 1:1 mixture of tetrahydrofuran and methanol (4 mL) is added 1N aqueous sodium hydroxide (2 mL) and the mixture is stirred for approximately 2 hours at room temperature. The solution is then poured into 2 M aqueous hydrochloric acid (5 mL), extracted into ethyl acetate, and the extracts are dried over anhydrous sodium sulfate. The solvent is removed by evaporation under reduced pressure and the residue is triturated with diethyl ether to provide the desired product as a white solid.

15

Using the above procedure and appropriate starting materials the following compounds were prepared:

{4-[3-(4-Acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetic acid

{2-[3-(4-Acetylamino-phenyl)-thioureido]-4-chloro-5-methoxy-phenoxy}-acetic acid

{4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-5-methoxy-phenoxy}-acetic acid

20

**EXAMPLE 61 (METHOD 37)**

Benzoic acid 2-{4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-ethyl ester

To an ice cooled solution of N-(4-{3-[3,5-dichloro-4-(2-hydroxy-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide (0.20 g) in pyridine (2 mL) and tetrahydrofuran (0.5 mL) is added benzoyl chloride (0.08 g) and the mixture is stirred at 0 °C for 1.5 hours. The mixture is then diluted with ethyl acetate, washed successively two times

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with 2% aqueous hydrochloric acid, once with saturated aqueous sodium chloride, then dried over anhydrous sodium sulfate. After removal of the solvent under reduced pressure the residue is chromatographed over silica gel (5% methanol in dichloromethane is used as the eluant) and product containing fractions are combined, evaporated under reduced pressure, and the residue is recrystallized from acetone-hexanes to provide the desired product as a white powder.

**EXAMPLE 62 (METHOD 38)**

Methanesulfonic acid 2-{4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichlorophenoxy}-ethyl ester

To an ice cooled solution of N-(4-{3-[3,5-dichloro-4-(2-hydroxy-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide (0.20 g) in pyridine (2 mL) and tetrahydrofuran (0.5 mL) is added methanesulfonyl chloride (0.11 g) and the solution is stirred at 0 °C for 15 minutes. The reaction mixture is then diluted with ethyl acetate, washed successively twice with 2% aqueous hydrochloric acid, once with saturated aqueous sodium chloride, and then dried over anhydrous magnesium sulfate. After removing the solvents by evaporation under reduced pressure the resulting residue is recrystallized from acetone-hexanes to give the desired product as a white powder.

20

**EXAMPLE 63 (METHOD 39)**

N-(4-{3-[3,5-Dichloro-4-(2-dimethylamino-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide

25 To a solution of methanesulfonic acid 2-{4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichlorophenoxy}-ethyl ester (0.33 g) in tetrahydrofuran (6 mL) is added aqueous dimethyl-amine (8.8 M, 0.5 mL) and the mixture is stirred at room temperature for 5 days. The reaction mixture is then diluted with ethyl acetate, then washed with saturated aqueous sodium chloride and dried over anhydrous magnesium sulfate. After removal of the solvent under reduced pressure the residue is chromatographed over silica gel (pure methanol is used as the eluant). Pooled

30

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product containing fractions are evaporated under reduced pressure and the residue is recrystallized from acetonitrile to provide the desired product as a white powder.

Using the above procedure and appropriate starting materials the following  
5 compounds were prepared:

N-(4-{3-[3,5-Dichloro-4-(2-dimethylamino-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide

Benzoic acid 2-{4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-ethyl ester

#### EXAMPLE 64 (METHOD 40)

Furan-2-carboxylic acid (4-{3-[4-(1-amino-ethyl)-3-chloro-phenyl]-thioureido}-phenyl)-amide  
10

To a solution of tin(II) chloride dihydrate (0.25 g) in methanol (2.5 mL) is added furan-2-carboxylic acid (4-{3-[4-(1-azido-ethyl)-3-chloro-phenyl]-thioureido}-phenyl)-amide (0.22 g) and the solution is stirred for approximately 15 hours at room 15 temperature. The solution is then diluted with ethyl acetate, washed successively with saturated aqueous sodium bicarbonate then saturated aqueous sodium chloride, then dried over anhydrous sodium sulfate. After removal of the solvent by evaporation under reduced pressure the residue is chromatographed over silica gel (8% methanol in dichloromethane containing 1% triethylamine is used as the eluant)  
20 to provide the desired product as a yellow solid.

#### EXAMPLE 65 (METHOD 41)

[1,2,3]Thiadiazole-4-carboxylic acid (4-isothiocyanato-phenyl)-amide

25 To a ice cooled solution of 1,1'-thiocarbonyldiimidazole (7.28 g) in tetrahydrofuran (50 mL) is added [1,2,3]-thiadiazole-4-carboxylic acid (4-amino-phenyl) amide (9.0 g) in tetrahydrofuran (100 mL). After approximately one hour the solvent is removed by evaporation and the residue is dissolved in ethyl acetate. Diethyl ether is

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added to precipitate the crude product, which is then collected by filtration, dissolved in dichloromethane, and passed through a plug of hydrous magnesium silicate. After removal of solvents, the residue is recrystallized from ethyl acetate-hexanes to provide the desired product as a slightly yellow solid.

5

Using the above procedure and appropriate starting materials the following compounds were prepared:

2-Fluoro-N-(4-isothiocyanato-phenyl)-benzamide

Furan-2-carboxylic acid (4-isothiocyanato-phenyl)-amide

[1,2,3]Thiadiazole-4-carboxylic acid (4-isothiocyanato-phenyl)-amide

Thiazole-4-carboxylic acid (4-isothiocyanato-phenyl)-amide

10

#### EXAMPLE 66 (METHOD 42)

##### N,N-Dimethyl-5-trifluoromethyl-benzene-1,3-diamine

To a solution of 3-amino-5-bromo-benzotrifluoride (1.0 g) in degassed (argon) tetrahydrofuran (2 mL) is added bis-(tri-*o*-tolylphosphino)palladium (0.15 g), a solution of dimethylamine in tetra-hydrofuran (2M, 4.2 mL), and a solution of lithium bis(trimethylsilyl)amide in tetrahydrofuran (1M, 10.4 mL). The reaction mixture is heated in a sealed vessel to 100°C for approximately 2.5 hours to complete the reaction. The mixture is then cooled to room temperature, quenched by addition of water, and diluted with ethyl acetate. The product is extracted three times into 5% aqueous hydrochloric acid, and pooled acidic extracts are then basified with cooling by addition of 5N aqueous sodium hydroxide. This basic solution is then extracted with ethyl acetate, and these pooled organic extracts are washed with saturated aqueous sodium chloride, dried over anhydrous magnesium sulfate, and evaporated to dryness under reduced pressure. The resulting residue is chromatographed over silica gel (20-30% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a slightly tinted solid.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

3-(4-Methyl-piperazin-1-yl)-5-trifluoromethyl-phenylamine  
3-Morpholin-4-yl-5-trifluoromethyl-phenylamine  
3-Piperidin-1-yl-5-trifluoromethyl-phenylamine  
3-Pyrrolidin-1-yl-5-trifluoromethyl-phenylamine  
N,N-Dimethyl-5-trifluoromethyl-benzene-1,3-diamine  
N-Isobutyl-N-methyl-5-trifluoromethyl-benzene-1,3-diamine  
N-Butyl-N-methyl-5-trifluoromethyl-benzene-1,3-diamine

5

#### EXAMPLE 67 (METHOD 43)

##### (3-Isobutyl-5-trifluoromethyl-phenyl)-carbamic acid tert-butyl ester

To a sealed tube containing tetrahydrofuran (5 mL) that is capped with a rubber septum and cooled in a dry ice-acetone bath is bubbled isobutylene for about 5 minutes. A solution of 9-borabicyclo[3.3.1]nonane in tetrahydrofuran (0.5 M, 11 mL) is added, the vessel is sealed with a teflon cap, slowly warmed to room temperature and kept at room temperature for approximately 2.5 hours. The mixture is then re-cooled in a dry ice-acetone bath, the teflon cap is replaced by a rubber septum, and argon is bubbled through the mixture with venting to removed the excess isobutylene. A solution of (3-bromo-5-trifluoromethyl-phenyl)-carbamic acid tert-butyl ester (1.7 g) in tetrahydrofuran (12 mL) is added, followed by [1,1'-bis(diphenylphosphino)-ferrocene]palladium(II) chloride-dichlormethane complex (0.12 g), and then 3N aqueous sodium hydroxide. The vessel is again sealed with the teflon cap and is then heated to 65°C for approximately 15 hours. The mixture is then cooled to room temperature, diluted with hexanes, washed with water, saturated aqueous sodium chloride, dried over anhydrous magnesium sulfate, and evaporated under reduced pressure. The resulting oil is chromatographed over silica gel (5% ethyl acetate in hexanes is used as the eluant) to provide the desired product as a white powder.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

[3-(2-Methyl-butyl)-5-trifluoromethyl-phenyl]-carbamic acid tert-butyl ester  
(3-Isobutyl-5-trifluoromethyl-phenyl)-carbamic acid tert-butyl ester

5

**EXAMPLE 68 (METHOD 44)****2-(3,5-Dichloro-phenylsulfanyl)-ethylamine**

To a solution of (3,5-dichlorophenylthio)acetonitrile (1.2g) in 3.0 mL of ethylene glycol dimethyl ether is added 0.61 mL of 10M borane dimethyl sulfide complex and 10 the mixture heated at reflux for 0.5 hours. The reaction is cooled in an ice bath and 2.0 mL of water and 2.0 mL of concentrated hydrochloric acid is added. This mixture is heated at reflux for 0.5 hr. The clear solution is then cooled and basified with 5N sodium hydroxide and extracted with ether. The ether extract is dried over potassium carbonate, filtered and concentrated to give 1.0g of a colorless oil.

15

Using the above procedure and appropriate starting materials the following compounds were prepared:

2-(3-Bromo-phenylsulfanyl)-ethylamine  
2-(4-Bromo-phenoxy)-ethylamine  
2-(4-Iodo-phenoxy)-ethylamine  
2-(3,4-Dichloro-phenoxy)-ethylamine  
2-(3-Chloro-phenylsulfanyl)-ethylamine  
2-(3,4-Dichloro-phenylsulfanyl)-ethylamine  
3-(4-Bromo-phenyl)-propylamine  
2-(2-Fluoro-phenoxy)-ethylamine  
2-(2-Chloro-phenoxy)-ethylamine  
2-(3-Bromo-phenoxy)-ethylamine  
2-(3-Fluoro-phenoxy)-ethylamine  
2-(3-Iodo-phenoxy)-ethylamine

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2-(3,5-Dichloro-phenylsulfanyl)-ethylamine

2-Phenylsulfanyl-ethylamine

1-(2-Chloro-phenyl)-ethylamine

**EXAMPLE 69 (METHOD 45)****N-(1-Naphthalen-2-yl-ethyl)-formamide**

- 5 A mixture of 2-acetylnaphthylene (3.0 g), ammonium formate (11.0 g), formic acid (3.3 mL), and formamide (3.5 mL) is heated at 190°C for 3 hours. The mixture is cooled, poured into water and extracted with ether. The ether extract is dried with anhydrous potassium carbonate, filtered and concentrated to give a yellow oil, which is crystallized from toluene-hexanes to give a white solid, 1.97 g.

10

Using the above procedure and appropriate starting materials the following compounds were prepared:

N-[1-(4-Fluoro-phenyl)-2-methyl-propyl]-formamide

N-(1-Naphthalen-2-yl-ethyl)-formamide

15

**EXAMPLE 70 (METHOD 46)****1-(2-Naphthyl)ethylamine**

- A mixture of N-(1-naphthalen-2-yl-ethyl)-formamide (1.12 g), ethanol (10 mL) and 5 N sodium hydroxide (10 mL) is heated at reflux for 1 hour. The solution is cooled, 20 poured into water and extracted with ether. The ether solution is dried with anhydrous potassium carbonate, filtered and concentrated to give the product (0.95 g) as a pale yellow oil.

- Using the above procedure and appropriate starting materials the following 25 compounds were prepared:

1-(3-Trifluoromethyl-phenyl)-ethylamine

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1-(4-Fluoro-phenyl)-2-methyl-propylamine  
[3-(1-Amino-ethyl)-phenyl]-dimethyl-amine  
3-(1-Amino-ethyl)-benzonitrile

**EXAMPLE 71 (METHOD 47)****1-(3-Trifluoromethyl-phenyl)-ethanone O-methyl-oxime**

- 5 Methoxylamine hydrochloride (2.33 g) is added to a solution of 3'-(trifluoromethyl)-acetophenone (1.5 g) in ethanol (20 mL) and pyridine (2 mL). The solution is heated at reflux for 45 minutes. The reaction mixture is then cooled, concentrated under reduced pressure and partitioned between water and ethyl acetate. The aqueous layer is extracted with ethyl acetate. The combined organic layers are washed with
- 10 saturated aqueous sodium chloride, dried over anhydrous magnesium sulfate and concentrated under reduced pressure to give the desired product as a colorless oil (1.61 g).

Using the above procedure and appropriate starting materials the following  
15 compounds were prepared:

3,5-Bis-trifluoromethyl-benzaldehyde oxime  
1-(4-Fluoro-phenyl)-propan-1-one O-methyl-oxime  
1-(2-Chloro-phenyl)-ethanone O-methyl-oxime  
1-(3-Bromo-phenyl)-ethanone O-methyl-oxime  
1-(3-Chloro-phenyl)-ethanone O-methyl-oxime  
1-p-Tolyl-ethanone O-methyl-oxime  
1-(4-Fluoro-phenyl)-pentan-1-one O-methyl-oxime  
1-(4-Fluoro-phenyl)-2-phenyl-ethanone O-methyl-oxime  
1-o-Tolyl-ethanone O-methyl-oxime  
1-m-Tolyl-ethanone O-methyl-oxime  
1-(2-Fluoro-phenyl)-ethanone O-methyl-oxime  
3-(1-Methoxyimino-ethyl)-benzonitrile  
4-(1-Methoxyimino-ethyl)-benzonitrile

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- 1-(4-Methoxy-phenyl)-ethanone O-methyl-oxime  
1-(2-Methoxy-phenyl)-ethanone O-methyl-oxime  
1-(4-Dimethylamino-phenyl)-ethanone O-methyl-oxime  
1-(2-Trifluoromethyl-phenyl)-ethanone O-methyl-oxime  
1-(3-Methoxy-phenyl)-ethanone O-methyl-oxime  
1-(3-Trifluoromethyl-phenyl)-ethanone O-methyl-oxime  
1-(4-Trifluoromethyl-phenyl)-ethanone O-methyl-oxime  
1-Furan-2-yl-ethanone O-methyl-oxime  
1-Pyridin-4-yl-ethanone O-methyl-oxime  
1-(1-Methyl-1H-pyrrol-2-yl)-ethanone O-methyl-oxime  
1-Thiophen-3-yl-ethanone O-methyl-oxime  
(4-Fluoro-phenyl)-phenyl-methanone O-methyl-oxime  
1-(4-methoxyphenyl)ethanone O-methyloxime  
1-(3-Chloro-4-methoxy-phenyl)-ethanone O-methyl-oxime  
4-(1-Methoxyimino-ethyl)-benzenesulfonamide  
4-(1-Methoxyimino-ethyl)-N,N-dimethyl-benzenesulfonamide  
1-[4-(Piperidine-1-sulfonyl)-phenyl]-ethanone O-methyl-oxime  
4-(1-Methoxyimino-ethyl)-N,N-dipropyl-benzenesulfonamide  
2-Fluoro-N-[4-(1-methoxyimino-ethyl)-phenyl]-benzamide  
1-(3,5-Bis-trifluoromethyl-phenyl)-ethanone O-methyl-oxime  
1-[4-(1H-Imidazol-1-yl)phenyl]-1-ethanone, O-methyloxime  
1-[4-(Trifluoromethyl)phenyl]-1-ethanone, O-methyloxime  
1-[1,1'-Biphenyl]-4-yl-1-ethanone, O-methyloxime  
1-(4-Methylphenyl)-1-ethanone, O-methyloxime  
1-[4-fluoro-3-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-[3,5-bis(trifluoromethyl)phenyl]ethanone O-benzylloxime  
1-[4-chloro-3-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-[3-fluoro-5-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-[2-fluoro-4-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-[2-fluoro-5-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-(2,4-dichlorophenyl)ethanone O-methyloxime  
1-(2,4-dimethylphenyl)ethanone O-methyloxime

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1-[2,4-bis(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-(3-bromophenyl)ethanone O-methyloxime  
1-(3-methylphenyl)ethanone O-methyloxime  
1-[4-(4-morpholinyl)phenyl]ethanone O-methyloxime  
1-(2-chloro-4-fluorophenyl)ethanone O-methyloxime  
1-(4-bromo-2-fluorophenyl)ethanone O-methyloxime  
1-(3,4-difluorophenyl)ethanone O-methyloxime  
1-[3-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-[2-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-(2,4-difluorophenyl)ethanone O-methyloxime  
1-[3-fluoro-4-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-(3,4-dichlorophenyl)ethanone O-methyloxime  
1-[4-fluoro-2-(trifluoromethyl)phenyl]ethanone O-methyloxime  
1-(3-chloro-4-fluorophenyl)ethanone O-methyloxime  
1-(4-chloro-3-fluorophenyl)ethanone O-methyloxime  
1-(2,5-difluorophenyl)ethanone O-methyloxime  
1-(2-bromo-4-fluorophenyl)ethanone O-methyloxime  
1-(3,4-dibromophenyl)ethanone O-methyloxime  
1-(2-bromophenyl)ethanone O-methyloxime

**EXAMPLE 72 (METHOD 48)****1-(2-Trifluoromethyl-phenyl)-ethylamine**

- Sodium borohydride (1.17 g) is added slowly to a flask containing zirconium tetrachloride (1.8 g) in tetrahydrofuran (27 mL). A solution of 1-(2-trifluoromethyl-phenyl)-ethanone O-methyl-oxime (1.34 g) in tetrahydrofuran (7.7 mL) is added and the resulting solution is stirred at 25 °C for 12 hours. The reaction mixture is then cooled to 0 °C and water (16 mL) is slowly added. Excess ammonium hydroxide is added and the solution is extracted twice with ethyl acetate. The organic portion is washed twice with 1N hydrochloric acid. The aqueous (acid) layer is basified with sodium hydroxide and extracted twice with ethyl acetate. The organic layer is then washed with saturated aqueous sodium chloride and dried over anhydrous magnesium

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sulfate. The solvent is removed under reduced pressure to provide the desired product as a yellow oil (0.20 g).

Using the above procedure and appropriate starting materials the following  
5 compounds were prepared:

1-(3-Methoxy-phenyl)-ethylamine  
1-(4-Fluoro-phenyl)-propylamine  
1-Naphthalen-2-yl-ethylamine  
4-(1-Amino-ethyl)-benzonitrile  
1-(4-Trifluoromethyl-phenyl)-ethylamine  
1-(4-Methoxy-phenyl)-ethylamine  
1-Prop-2-ynyl-pyrrolidine  
1-(2-Methoxy-phenyl)-ethylamine  
1-m-Tolyl-ethylamine  
1-(2-Bromo-phenyl)-ethylamine  
1-o-Tolyl-ethylamine  
C-(4-Fluoro-phenyl)-C-phenyl-methylamine  
1-(4-Fluoro-phenyl)-pentylamine  
1-(4-Fluoro-phenyl)-2-phenyl-ethylamine  
1-(2-Trifluoromethyl-phenyl)-ethylamine  
1-(3-Bromo-phenyl)-ethylamine  
1-(3-Chloro-phenyl)-ethylamine  
[4-(1-Amino-ethyl)-phenyl]-dimethyl-amine  
1-(1-Methyl-1H-pyrrol-2-yl)-ethylamine  
1-Thiophen-3-yl-ethylamine  
1-[3,5-bis(trifluoromethyl)phenyl]propylamine  
1-[3,5-bis(trifluoromethyl)phenyl]-1-butanamine or 1-[3,5-bis(trifluoromethyl)phenyl]butylamine  
1-[3,5-bis(trifluoromethyl)phenyl]-1-pantanamine  
1-(4-methylphenyl)ethanamine  
1-[3-(trifluoromethyl)phenyl]ethylamine

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1-[4-(trifluoromethyl)phenyl]ethylamine  
1-(3-methylphenyl)ethanamine  
1-(3,4-dichlorophenyl)ethanamine  
1-(2-Bromo-phenyl)-ethylamine  
1-(2-Trifluoromethyl-phenyl)-ethylamine  
1-(3-Bromo-phenyl)-ethylamine  
1-(3-Chloro-4-methoxy-phenyl)-ethylamine  
4-(1-Amino-ethyl)-N,N-dimethyl-benzenesulfonamide  
1-[4-(Piperidine-1-sulfonyl)-phenyl]-ethylamine  
1-Quinolin-6-yl-ethylamine  
1-(3,5-Bis-trifluoromethyl-phenyl)-ethylamine  
4-[(1S)-1-aminoethyl]benzonitrile  
(S)-alpha-Methyl-3,5-bis(trifluoromethyl)-benzenemethanamine(S)-alpha-Methyl-3,5-bis(trifluoromethyl)-benzenemethanamine  
1-Biphenyl-4-yl-ethylamine  
1-(4-Fluoro-phenyl)-ethylamine  
1-[4-fluoro-3-(trifluoromethyl)phenyl]ethanamine  
1-[4-chloro-3-(trifluoromethyl)phenyl]ethanamine  
N-{4-[(1R)-1-aminoethyl]phenyl}-1,2,3-thiadiazole-4-carboxamide  
N-{4-[(1S)-1-aminoethyl]phenyl}-1,2,3-thiadiazole-4-carboxamide  
1-[3-fluoro-5-(trifluoromethyl)phenyl]ethylamine  
1-[2-fluoro-4-(trifluoromethyl)phenyl]ethylamine  
1-[2-fluoro-5-(trifluoromethyl)phenyl]ethylamine  
1-(2,4-dichlorophenyl)ethylamine  
1-(2,4-dimethylphenyl)ethylamine  
1-[2,4-bis(trifluoromethyl)phenyl]ethylamine  
1-(2-chloro-4-fluorophenyl)ethylamine  
1-(3,4-difluorophenyl)ethylamine  
1-(4-bromo-2-fluorophenyl)ethylamine  
1-(3-fluorophenyl)ethylamine  
1-(2,4-difluorophenyl)ethylamine  
1-[3-fluoro-4-(trifluoromethyl)phenyl]ethylamine

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- 1-[4-fluoro-2-(trifluoromethyl)phenyl]ethylamine
- 1-(3-chloro-4-fluorophenyl)ethylamine
- 1-(4-chloro-3-fluorophenyl)ethylamine
- 1-(3,4-dibromophenyl)ethylamine
- 1-(2-bromo-4-fluorophenyl)ethanamine1-(2-bromo-4-fluorophenyl)ethylamine

**EXAMPLE 73 (METHOD 49)****(2-Fluoro-5-trifluoromethyl-phenoxy)-acetonitrile**

- A solution of 2-fluoro-5-trifluoromethylphenol (25 g) in reagent grade acetone (0.55 L) is treated with solid potassium carbonate (7.7 g) followed by the rapid addition of neat bromoacetonitrile (10 mL). The heterogenous mixture is stirred vigorously for approximately 20 hours whereupon it is poured into water and extracted into diethyl ether. The combined ether extracts are washed with saturated sodium chloride and dried over anhydrous potassium carbonate. Filtration and concentration under reduced pressure gives a pale orange solid which is then chromatographed on silica gel, eluting with dichloromethane, to give the desired product as white solid (28.3 g).

Using the above procedure and appropriate starting materials the following compounds were prepared:

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- (3-Bromo-phenylsulfanyl)-acetonitrile
  - (3-Chloro-phenylsulfanyl)-acetonitrile
  - (4-Iodo-phenoxy)-acetonitrile
  - (3-Trifluoromethyl-phenylsulfanyl)-acetonitrile
  - (3,5-Dichloro-phenylsulfanyl)-acetonitrile
  - (3,4-Dichloro-phenylsulfanyl)-acetonitrile
  - (3,4-Dichloro-phenoxy)-acetonitrile
  - (2-Fluoro-phenoxy)-acetonitrile
  - (3-Fluoro-phenoxy)-acetonitrile
  - (2-Chloro-phenoxy)-acetonitrile
  - (3-Bromo-phenoxy)-acetonitrile

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(2-Fluoro-5-trifluoromethyl-phenoxy)-acetonitrile

(3-Iodo-phenoxy)-acetonitrile

(4-Bromo-phenoxy)-acetonitrile

**EXAMPLE 74 (METHOD 50)****3-Fluoro-5-trifluoromethylphenethylamine tosylate**

- 5 A solution of 2.5 g of 3-fluoro-5-trifluoromethylphenylacetonitrile and 2.34 g (12.3 mmol) of p-toluenesulfonic acid in 75 ml of ethylene glycol monomethyl ether is hydrogenated for 3 hours at room temperature at 40 psi, using 200 mg 10% palladium on carbon catalyst. The catalyst is filtered off and the solvent evaporated to half the volume. Upon standing, the p-toluenesulfonic acid salt of the desired 3-fluoro-5-trifluoromethylphenethylamine crystallizes. The white crystals, 4.26g (91%) are collected by filtration.
- 10

Using the above procedure and appropriate starting materials the following compounds were prepared:

15

- 2-(3,5-Difluoro-phenyl)-ethylamine
- 2-(4-Trifluoromethyl-phenyl)-ethylamine
- 2-(3,4-Difluoro-phenyl)-ethylamine
- 2-(2-Fluoro-phenyl)-ethylamine
- 2-(3-Fluoro-5-trifluoromethyl-phenyl)-ethylamine
- 2-(2-Fluoro-3-trifluoromethyl-phenyl)-ethylamine
- 2-(2,4-Bis-trifluoromethyl-phenyl)-ethylamine
- 2-(4-Fluoro-3-trifluoromethyl-phenyl)-ethylamine

**EXAMPLE 75 (METHOD 51)****(4-Aminomethyl-2-trifluoromethyl-phenyl)-dimethyl-amine**

- 20 A solution of 4-dimethylamino-3-trifluoromethylbenzonitrile (0.35 g) in tetrahydrofuran (2 mL) is slowly added to a suspension of lithium aluminum hydride

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(0.1 g) in tetrahydrofuran (2 mL) at 0 °C and stirred under an atmosphere of argon for 2 hours. While at 0 °C water (0.1 mL) is slowly added followed by 5% sodium hydroxide (0.1 mL) and water (0.3 mL). The resulting gray solid is filtered and washed with tetrahydrofuran. The filtrates are collected and concentrated under reduced pressure and the resulting oil is chromatographed over silica gel (15% methanol in methylene chloride is used as the eluant) to provide the desired product as a pale orange oil (0.164 g).

Using the above procedure and appropriate starting materials the following compounds were prepared:

4-Piperidin-1-yl-3-trifluoromethyl-benzylamine  
(4-Aminomethyl-2-trifluoromethyl-phenyl)-dimethyl-amine  
4-(4-Methyl-piperazin-1-yl)-3-trifluoromethyl-benzylamine  
(3-Aminomethyl-5-trifluoromethyl-phenyl)-dimethyl-amine  
[3-(2-Amino-ethyl)-5-trifluoromethyl-phenyl]-dimethyl-amine  
[4-(2-Amino-ethyl)-2-methyl-phenyl]-dimethyl-amine

#### EXAMPLE 76 (METHOD 52)

##### 3-Dimethylamino-5-trifluoromethyl-benzaldehyde

Diisobutylaluminum hydride (10 mL of a 1M solution in methylene chloride) is added dropwise to a solution of 3-dimethylamino-5-trifluoromethylbenzonitrile (1.06 g) in methylene chloride (25 mL) at 0 °C and the mixture stirred for 2 hours. While still at 0 °C a saturated aqueous solution of sodium potassium tartrate (8 mL) is slowly added and the solution is stirred for 1.5 hours. The reaction mixture is then extracted with ethyl acetate, dried over anhydrous magnesium sulfate and concentrated under reduced pressure to provide the desired product as a yellow solid (0.97 g).

Using the above procedure and appropriate starting materials the following compounds were prepared:

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**3-Dimethylamino-5-trifluoromethyl-benzaldehyde****4-Dimethylamino-3-methyl-benzaldehyde****EXAMPLE 77 (METHOD 53)****Dimethyl-[3-(2-nitro-vinyl)-5-trifluoromethyl-phenyl]-amine**

- 5 Nitromethane (0.473 g) is added to a solution of 3-dimethylamino-5-trifluoromethyl-benzaldehyde (0.885 g) and ammonium acetate (0.339 g) in acetic acid (3.4 mL) and the solution is heated at 110 °C for 6 hours. The reaction mixture is cooled to 0 °C and a solid forms which is filtered and washed with 1:1 water-acetic acid. This solid is recrystallized from ethanol to provide the desired product as a red solid (0.39 g).

10

Using the above procedure and appropriate starting materials the following compounds were prepared:

**Dimethyl-[3-(2-nitro-vinyl)-5-trifluoromethyl-phenyl]-amine****Dimethyl-[2-methyl-4-(2-nitro-vinyl)-phenyl]-amine**

15

**EXAMPLE 78 (METHOD 54)****3-(4-Bromo-phenyl)-propionitrile**

- Diethylazodicarboxylate (5.2 g) is added dropwise to a solution of 4-bromo-phenethylalcohol (2.01 g), and triphenylphosphine (7.9 g) in diethyl ether (16 mL) at 20 0 °C. The reaction mixture is stirred for 10 minutes and a solution of acetone cyanohydrin (2.6 g) in diethyl ether (10 mL) is added. The clear orange solution is stirred for 5 minutes at 0 °C and then at 25 °C for 12 hours. The reaction mixture is then filtered, and washed with diethyl ether. The filtrate is concentrated under reduced pressure and chromatographed over silica gel (10% ethyl acetate-hexanes is 25 used as the eluant) to provide the desired product as a pale yellow oil (2.04 g).

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**EXAMPLE 79 (METHOD 55)****3-Dimethylamino-2-isocyano-acrylic acid ethyl ester**

To a solution of ethyl isocyanoacetate (5.0 g) in ethanol (100 mL) is added N,N-dimethyl-formamide dimethyl acetal (6.5 g) dropwise with stirring over 10 minutes. The reaction is stirred for 24 hours and the ethanol is evaporated. The resulting oil is passed through magnesium silicate using 50% ethyl acetate-hexanes as the eluant. The solvents are removed and the resulting oil is crystallized from ethyl acetate-hexanes to yield light yellow needles, 3.0 g.

10

**EXAMPLE 80 (METHOD 56)****4-Carboethoxythiazole**

A solution of 3-dimethylamino-2-isocyano-acrylic acid ethyl ester (1.0 g) and triethylamine (3.0 g) in tetrahydrofuran (30 mL) is treated with gaseous hydrogen sulfide until all starting material is consumed. The mixture is concentrated to an oil and purified by column chromatography using silica and 25% ethyl acetate-hexanes as the eluant. The purified material (0.61 g) is isolated as an oil.

20

**EXAMPLE 81 (METHOD 34)****N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-ureido]-phenyl}-2-fluoro-benzamide**

A suspension of N-(4-amino-phenyl)-2-fluoro-benzamide (0.43 g) in acetonitrile (4 mL) is treated with 5-chloro-2,4-dimethoxyphenylisocyanate (0.40 g). The mixture becomes a solution and is allowed to stand for 12 hours. A white solid forms and is collected by filtration (0.79 g). [M+H] 444.

Using the above procedure and appropriate starting materials the following compounds were prepared:

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EX NO.	M+H	COMPOUND NAME
81	445	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-ureido]-phenyl}-2-fluoro-benzamide
82	441	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-ureido]-phenyl}-2-methyl-benzamide
83	435	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-ureido]phenyl}-amide
84	443	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-ureido]-phenyl} amide
85	453	N-{4-[3-(4-Chloro-3-trifluoromethyl-phenyl)-ureido]-phenyl}-2-fluoro-benzamide
86	409	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-ureido]-phenyl}-amide
87	486	N-{4-[3-(3,5-Bis-trifluoromethyl-phenyl)-ureido]-phenyl}-2-fluoro-benzamide
88	458	Furan-2-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-ureido]-phenyl}-amide
89	476	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-ureido]-phenyl}-amide
90	423	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,4-dichloro-benzyl)-ureido]-phenyl}-amide

## EXAMPLE 91 (METHOD 31)

5 N-(5-{{(1S)-1-[3,5-bis(trifluoromethyl)phenyl]ethyl}amino}carbothioyl)-amino)-2-pyridinyl)-1,3-thiazole-4-carboxamide

A mixture of N-(5-isothiocyanato-2-pyridinyl)-1,3-thiazole-4-carboxamide (0.36 g) and (S)-alpha-methyl-3,5-bis(trifluoromethyl)-benzenemethanamine (0.36 g) is heated with acetonitrile (10 mL) until all solids are dissolved. The solution is allowed to stand for 12 hours. A white solid forms and is collected by filtration (0.40 g). [M+H] 520.

Using the above procedure and appropriate starting materials the following  
15 compounds were prepared:

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<u>EX. NO.</u>	<u>M+H</u>	<u>COMPOUND NAME</u>
92	506	[3-Chloro-5-(3-{4-[(1,2,3]thiadiazole-4-carbonyl)-amino]-phenyl}-thioureido)-phenyl]-carbamic acid tert-butyl ester
93	409	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(4-morpholin-4-yl-phenyl)-thiourea
94	370	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(4-methylsulfanyl-phenyl)-thiourea
95	338	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-p-tolyl-thiourea
96	414	{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenylsulfanyl}-acetic acid
97	384	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-[4-(2-hydroxy-ethoxy)-phenyl]-thiourea
98	340	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(4-hydroxy-phenyl)-thiourea
99	395	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-N-methyl-acetamide
100	381	N-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
101	411	{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamic acid ethyl ester
102	319	1-(2,4-Dimethoxy-phenyl)-3-(4-methoxy-phenyl)-thiourea
103	346	N-{4-[3-(2,4-Dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
104	316	N-{4-[3-(4-Methoxy-phenyl)-thioureido]-phenyl}-acetamide
105	316	N-{4-[3-(2-Methoxy-phenyl)-thioureido]-phenyl}-acetamide
106	351	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
107	351	N-{4-[3-(5-Chloro-2-methoxy-phenyl)-thioureido]-phenyl}-acetamide
108	371	N-{4-[3-(3,5-Dichloro-4-hydroxy-phenyl)-thioureido]-phenyl}-acetamide
109	385	N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
110	381	N-{4-[3-(4-Chloro-2,5-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
111	389	N-{4-[3-(2-Chloro-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-acetamide
112	389	N-{4-[3-(4-Chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-acetamide
113	422	Benzoic acid 4-[3-(4-acetylaminophenyl)-thioureido]-3-hydroxy-phenylester
114	457	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-methyl-benzamide
115	501	Acetic acid 2-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl-carbamoyl}-phenyl ester
116	461	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-4-fluoro-benzamide

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- 117 461 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-3-fluoro-benzamide
- 118 461 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 119 473 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-methoxy-benzamide
- 120 473 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-3-methoxy-benzamide
- 121 473 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-4-methoxy-benzamide
- 122 443 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
- 123 417 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-methanesulfonamide
- 124 331 N-{4-[3-(3-Nitro-phenyl)-thioureido]-phenyl}-acetamide
- 125 339 1-(3-Chloro-4-methoxy-phenyl)-3-(3-nitro-phenyl)-thiourea
- 126 337 N-{4-[3-(5-Chloro-2-hydroxy-phenyl)-thioureido]-phenyl}-acetamide
- 127 439 {4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamic acid tert-butyl ester
- 128 351 N-{4-[3-(3-Chloro-4-hydroxy-5-methyl-phenyl)-thioureido]-phenyl}-acetamide
- 129 385 N-{4-[3-(3,5-Dichloro-4-hydroxy-2-methyl-phenyl)-thioureido]-phenyl}-acetamide
- 130 318 N-{4-[3-(2,4-Dihydroxy-phenyl)-thioureido]-phenyl}-acetamide
- 131 414 N-{4-[3-(2,4-Dimethoxy-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-acetamide
- 132 332 N-{4-[3-(2-Hydroxy-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 133 465 N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-4-fluoro-benzamide
- 134 500 3-Acetylmino-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
- 135 488 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-3-nitro-benzamide
- 136 486 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-3-dimethylamino-benzamide
- 137 536 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-3-methane-sulfonyl-amino-benzamide
- 138 511 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-trifluoro-

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		methyl-benzamide
139	459	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-hydroxy-benzamide
140	479	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2,6-difluoro-benzamide
141	477	2-Chloro-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
142	522	2-Bromo-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
143	488	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-nitro-benzamide
144	445	Pyrazine-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
145	463	5-Methyl-thiophene-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
146	494	Quinoline-8-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
147	446	1-Methyl-1H-pyrrole-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
148	369	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(2-nitro-phenyl)-thiourea
149	369	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(4-nitro-phenyl)-thiourea
150	425	N-{4-[3-(5-Bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
151	376	N-{4-[3-(3,4,5-Trimethoxy-phenyl)-thioureido]-phenyl}-acetamide
152	399	N-{4-[3-(3,5-Dichloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-acetamide
153	499	Benz[b]thiophene-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
154	483	Benzofuran-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
155	444	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-isonicotinamide
156	493	Naphthalene-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
157	493	Naphthalene-1-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
158	494	Isoquinoline-1-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide

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- 159 494 Quinoline-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 160 444 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-nicotinamide
- 161 478 5-Nitro-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amidecarbamic acid phenyl ester
- 162 459 {4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-
- 163 467 5-Chloro-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 164 439 {4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamic acid isobutyl ester
- 165 397 {4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamic acid methyl ester
- 166 433 Furan-3-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 167 447 3-Methyl-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 168 512 5-Bromo-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 169 512 4-Bromo-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 170 433 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 171 467 {4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamic acid hexyl ester
- 172 494 Isoquinoline-4-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 173 451 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 174 434 1H-[1,2,3]Triazole-4-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 175 528 3-Bromo-thiophene-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 176 399 N-{4-[3-(3,5-Dichloro-4-ethoxy-phenyl)-thioureido]-phenyl}-acetamide
- 177 427 N-{4-[3-(4-Butoxy-3,5-dichloro-phenyl)-thioureido]-phenyl}-acetamide
- 178 461 N-{4-[3-(4-Benzylxy-3,5-dichloro-phenyl)-thioureido]-phenyl}-acetamide
- 179 381 N-{4-[3-(3-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
- 180 530 (3-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}carbamoyl)-

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		phenyl)-carbamic acid ethyl ester
181	458	2-Amino-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
182	519	Biphenyl-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
183	469	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-[4-(1,3-dioxo-1,3-dihydro-isoindol-2-yl)-phenyl]-thiourea
184	487	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-phthalamic acid
185	473	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-hydroxy-methyl-benzamide
186	479	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2,3-difluoro-benzamide
187	479	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2,5-difluoro-benzamide
188	479	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2,4-difluoro-benzamide
189	500	2-Acetylamino-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
190	441	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(6-oxo-5,6-dihydro-phenanthridin-2-yl)-thiourea
191	536	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-methane-sulfonylamino-benzamide
192	497	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2,3,4-trifluoro-benzamide
193	533	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2,3,4,5,6-pentafluoro-benzamide
194	489	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-methyl-sulfanyl-benzamide
195	431	5-Methyl-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-ureido]-phenyl}-amide
196	467	5-Difluoromethyl-furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-ureido]-phenyl}-amide
197	472	N-{4-[3-(5-Iodo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
198	364	N-{4-[3-(5-Fluoro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
199	365	N-{4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-acetamide
200	459	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-

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		phenyl)-thioureido]-phenyl}-amide
201	455	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-amide
202	392	N-{4-[3-(3-Chloro-4-diethylamino-phenyl)-thioureido]-phenyl}-acetamide
203	432	N-(4-{3-[3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido}-phenyl)-acetamide
204	506	1-Hydroxy-naphthalene-2-carboxylic acid {4-[3-(4-acetylamino-phenyl)-thioureido]-2-chloro-phenyl}-amide
205	406	N-{4-[3-(3-Chloro-4-morpholin-4-yl-phenyl)-thioureido]-phenyl}-acetamide
206	443	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(3-chloro-4-morpholin-4-yl-phenyl)-thiourea
207	372	1-(5-Chloro-2,4-dimethoxy-phenyl)-3-(5-chloro-2-methyl-phenyl)-thiourea
208	501	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-isophthalamic acid methyl ester
209	487	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-isophthalamic acid
210	549	3-Benzyl-oxo-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
211	434	N-(4-{3-[5-Chloro-2-methoxy-4-(4-nitrido-butoxy)-phenyl]-thioureido}-phenyl)-acetamide
212	406	N-(4-{3-[5-Chloro-2-methoxy-4-(2-nitrido-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide
213	406	N-(4-{3-[5-Chloro-4-methoxy-2-(2-nitrido-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide
214	411	N-(4-{3-[5-Chloro-2-(2-hydroxy-ethoxy)-4-methoxy-phenyl]-thioureido}-phenyl)-acetamide
215	411	N-(4-{3-[5-Chloro-4-(2-hydroxy-ethoxy)-2-methoxy-phenyl]-thioureido}-phenyl)-acetamide
216	481	{4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-5-methoxy-phenoxy}-acetic acid tert-butyl ester
217	439	{4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-5-methoxy-phenoxy}-acetic acid methyl ester
218	481	{2-[3-(4-Acetylamino-phenyl)-thioureido]-4-chloro-5-methoxy-phenoxy}-acetic acid tert-butyl ester
219	515	3-Butoxy-N-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-benzamide
220	505	N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-methane-sulfinyl-benzamide

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- 221 545 (3-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}carbamoyl)-phenoxy)-acetic acid ethyl ester
- 222 517 (3-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}carbamoyl)-phenoxy)-acetic acid
- 223 367 N-{4-[3-(5-Chloro-4-hydroxy-2-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 224 444 Pyridine-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 225 494 Quinoline-4-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 226 436 N-{4-[3-(5-Chloro-4-methoxy-2-morpholin-4-yl-phenyl)-thioureido]-phenyl}-Acetamide
- 227 394 N-{4-[3-(5-Chloro-2-dimethylamino-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 228 420 N-{4-[3-(5-Chloro-4-methoxy-2-pyrrolidin-1-yl-phenyl)-thioureido]-phenyl}-acetamide
- 229 434 N-{4-[3-(5-Chloro-4-methoxy-2-piperidin-1-yl-phenyl)-thioureido]-phenyl}-acetamide
- 230 405 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-methyl-phenyl)-thioureido]-phenyl}-amide
- 231 415 N-{4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 232 427 N-{4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-phenyl}-3-methoxy-benzamide
- 233 387 Furan-2-carboxylic acid {4-[3-(3-chloro-4-methyl-phenyl)-thioureido]-phenyl}-amide
- 234 411 N-{4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-phenyl}-2-methyl-benzamide
- 235 433 N-{4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-phenyl}-2,6-difluoro-benzamide
- 236 398 Pyridine-2-carboxylic acid {4-[3-(3-chloro-4-methyl-phenyl)-thioureido]-phenyl}-amide
- 237 502 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-[3-chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido]-phenyl}-amide
- 238 512 N-{4-[3-(3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 239 404 N-{4-[3-(3-Chloro-4-piperidin-1-yl-phenyl)-thioureido]-phenyl}-acetamide
- 240 364 N-{4-[3-(3-Chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-acetamide

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- 241 426 N-(4-[3-(4-Benzylamino-3-chloro-phenyl)-thioureido]-phenyl)-acetamide  
242 390 N-(4-[3-(3-Chloro-4-pyrrolidin-1-yl-phenyl)-thioureido]-phenyl)-acetamide  
243 419 N-(4-[3-[3-Chloro-4-(4-methyl-piperazin-1-yl)-phenyl]-thioureido]-phenyl)-acetamide  
244 469 N-(4-[3-(4-Chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl)-2-fluoro-benzamide  
245 422 N-(4-[3-(2-Benzylamino-4-methoxy-phenyl)-thioureido]-phenyl)-acetamide  
246 484 Furan-2-carboxylic acid (4-{3-[3-chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido}-phenyl)-amide  
247 508 N-(4-[3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido)-phenyl)-2-methyl-benzamide  
248 530 N-(4-[3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido)-phenyl)-2,6-difluoro-benzamide  
249 495 Pyridine-2-carboxylic acid (4-{3-[3-chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido}-phenyl)- amide  
250 524 N-(4-{3-[3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido}-phenyl)-3-methoxy-benzamide  
251 376 N-(4-{3-[3-Chloro-4-(2-nitro-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide  
252 393 N-(4-[3-(4-sec-Butoxy-3-chloro-phenyl)-thioureido]-phenyl)-acetamide  
253 501 Acetic acid 3-{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamoyl)-phenyl ester  
254 459 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl)-3-hydroxy-benzamide  
255 487 Benzo[1,3]dioxole-4-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide  
256 527 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl)-3-trifluoro-methoxy-benzamide  
257 530 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl)-3-(2-dimethylamino-ethoxy)-benzamide  
258 572 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl)-3-(2-morpholin-4-yl-ethoxy)-benzamide  
259 406 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-cyano-phenyl)-acetamide  
260 521 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2,5-dimethoxy-phenyl)-2-fluoro-benzamide  
261 441 N-(4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2,5-dimethoxy-phenyl)-acetamide

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- 262 527 2-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenoxy]-5-chloro-benzenesulfonic acid
- 263 562 2-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenoxy]-4,5-dichloro-benzenesulfonic acid
- 264 527 4-Phenyl-[1,2,3]thiadiazole-5-carboxylic acid{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 265 381 N-(4-[3-[3-Chloro-4-(2-hydroxy-ethoxy)-phenyl]-thioureido]-phenyl)-acetamide
- 266 393 N-[4-[3-(4-Butoxy-3-chloro-phenyl)-thioureido]-phenyl]-acetamide
- 267 446 N-(4-[3-[3-Chloro-4-(cyclohexyl-ethyl-amino)-phenyl]-thioureido]-phenyl)-acetamide
- 268 365 N-[4-[3-(3-Chloro-4-ethoxy-phenyl)-thioureido]-phenyl]-acetamide
- 269 427 N-[4-[3-(4-Benzyl-oxo-3-chloro-phenyl)-thioureido]-phenyl]-acetamide
- 270 317 {4-[3-Methyl-furan-2-carbonyl]-amino]-phenyl}-carbamic acidtert-butyl ester
- 271 456 N-[4-[3-(2-Benzyl-amino-5-chloro-4-methoxy-phenyl)-thioureido]-phenyl]-acetamide
- 272 420 N-[4-[3-(3-Chloro-4-dipropylamino-phenyl)-thioureido]-phenyl]-acetamide
- 273 458 N-(4-[3-[4-(Allyl-cyclohexyl-amino)-3-chloro-phenyl]-thioureido]-phenyl)-acetamide
- 274 411 N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methoxy-phenyl]-acetamide
- 275 415 N-[2-Chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl]-acetamide
- 276 493 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2,5-dimethoxy-phenyl}-amide
- 277 486 N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-cyano-phenyl]-2-fluoro-benzamide
- 278 495 N-[2-Chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
- 279 465 5-Methyl-[1,2,3]thiadiazole-4-carboxylic acid{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 280 517 5-Furan-3-yl-[1,2,3]thiadiazole-4-carboxylic acid{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}amide
- 281 527 5-Phenyl-[1,2,3]thiadiazole-4-carboxylic acid{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 282 458 N-(4-[3-[3-Chloro-4-(octahydro-quinolin-1-yl)-phenyl]-thioureido]-phenyl)-acetamide

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- 283 458 N-[5-[[[5-Chloro-2,4-dimethoxyphenyl)amino]thioxomethyl]amino]-2-pyridinyl]-2-methylbenzamide
- 284 434 Furan-2-carboxylic acid {5-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-2-yl}-amide
- 285 425 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methoxy-5-methyl-phenyl}-acetamide
- 286 505 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methoxy-5-methyl-phenyl}-2-fluoro-benzamide
- 287 477 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methoxy-5-methyl-phenyl}-amide
- 288 517 4-Furan-3-yl-[1,2,3]thiadiazole-5-carboxylic acid{4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 289 462 N-{5-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-2-yl}-2-fluoro-benzamide
- 290 384 N-{4-[3-(4-Methoxy-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-acetamide
- 291 394 N-[4-(3-(3-Chloro-4-[(2-hydroxy-ethyl)-methyl-amino]-phenyl)-thioureido]-phenyl]-acetamide
- 292 485 N-{2-Benzoyl-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
- 293 565 N-{2-Benzoyl-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 294 537 Furan-2-carboxylic acid {2-benzoyl-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 295 475 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methyl-phenyl}-2-fluoro-benzamide
- 296 447 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methyl-phenyl}-amide
- 297 395 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methyl-phenyl}-acetamide
- 298 435 N-[4-(3-(3-Chloro-4-[(3-dimethylamino-propyl)-methyl-amino]-phenyl)-thioureido]-phenyl]-acetamide
- 299 418 N-{4-[3-(3-Chloro-4-cyclohexylamino-phenyl)-thioureido]-phenyl}-acetamide
- 300 421 N-[4-(3-(3-Chloro-4-[(2-dimethylamino-ethyl)-methyl-amino]-phenyl)-thioureido]-phenyl]-acetamide
- 301 580 5-[[[5-Chloro-2,4-dimethoxyphenyl)amino]thioxomethyl]amino]-2-[(2-fluorobenzoyl)amino]-N-phenyl-benzamide

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- 302 552 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-phenylcarbamoyl-phenyl}-amide
- 303 491 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methoxy-phenyl}-2-fluoro-benzamide
- 304 463 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methoxy-phenyl}-amide
- 305 449 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-trifluoromethyl-phenyl}-acetamide
- 306 458 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-cyano-phenyl}-amide
- 307 467 Furan-2-carboxylic acid {2-chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 308 501 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-trifluoromethyl-phenyl}-amide
- 309 395 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methyl-phenyl}-acetamide
- 310 475 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methyl-phenyl}-2-fluoro-benzamide
- 311 447 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methyl-phenyl}-amide
- 312 378 N-{4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-phenyl}-acetamide
- 313 408 {4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-phenyl}-carbamic acid ethyl ester
- 314 382 N-{5-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-2-yl}-acetamide
- 315 509 N-(4-{3-[4-(1-Benzyl-piperidin-4-ylamino)-3-chloro-phenyl]-thioureido}-phenyl)-acetamide
- 316 407 N-(4-{3-[3-Chloro-4-(2-dimethylamino-ethylamino)-phenyl]-thioureido}-phenyl)-acetamide
- 317 408 N-[4-(3-{3-Chloro-4-[(2-methoxy-ethyl)-methyl-amino]-phenyl}-thioureido)-phenyl]-acetamide
- 318 421 N-(4-{3-[3-Chloro-4-(3-dimethylamino-propylamino)-phenyl]-thioureido}-phenyl)-acetamide
- 319 495 N-(4-{3-[4-(1-Benzyl-pyrrolidin-3-ylamino)-3-chloro-phenyl]-thioureido}-phenyl)-acetamide
- 320 483 Furan-2-carboxylic acid {5-chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-hydroxy-phenyl}-amide
- 321 431 N-{5-Chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-hydroxy-

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- phenyl}-acetamide  
322 511 (5H,11H-Benzo[e]pyrrolo[1,2-a][1,4]diazepin-10-yl)-(2-chloro-4-imidazol-1-yl-phenyl)-methanone  
323 451 [1,2,3]Thiadiazole-5-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide  
324 483 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-naphthalen-1-yl}-amide  
325 511 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-naphthalen-1-yl}-2-fluoro-benzamide  
326 429 N-{5-Chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methyl-phenyl}-acetamide  
327 509 N-{5-Chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methyl-phenyl}-2-fluoro-benzamide  
328 481 Furan-2-carboxylic acid {5-chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-2-methyl-phenyl}-amide  
329 431 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-naphthalen-1-yl}-acetamide  
330 416 Furan-2-carboxylic acid {4-[3-(3-chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-amide  
331 561 Furan-2-carboxylic acid [4-(3-{4-[(1-benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl}-thioureido)-phenyl]-amide  
332 513 N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-pyrrolidin-3-yl)-amino]-phenyl}-thioureido)-phenyl]-2-fluoro-benzamide  
333 463 N-{4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-2,6-disfluoro-benzamide  
334 420 N-(4-{3-[3-Chloro-4-(1-methyl-pyrrolidin-3-yloxy)-phenyl]-thioureido}-phenyl)-acetamide  
335 434 N-(4-{3-[3-Chloro-4-(1-methyl-piperidin-4-yloxy)-phenyl]-thioureido}-phenyl)-acetamide  
336 422 N-(4-{3-[3-Chloro-4-(3-dimethylamino-propoxy)-phenyl]-thioureido}-phenyl)-acetamide  
337 425 2-Acetylamino-5-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-benzoic acid  
338 505 5-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-(2-fluoro-benzoylamino)-benzoic acid  
339 477 5-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-[(furani-2-carbonyl)-amino]-benzoic acid  
340 545 N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-

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- thioureido)-phenyl]-2,6-difluoro-benzamide
- 341 503 [1,2,3]Thiadiazole-4-carboxylic acid[4-(3-{3-chloro-4-[methyl-(1-methyl-pyrrolidin-3-yl)-amino]-phenyl}-thioureido)-phenyl]-amide
- 342 443 N-{4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-2-methyl-benzamide
- 343 408 N-(4-{3-[3-Chloro-4-(2-dimethylamino-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide
- 344 499 Furan-2-carboxylic acid [4-(3-{3-chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-thioureido)- phenyl]-amide
- 345 419 N-{4-[3-(3-Chloro-4-cyclohexyloxy-phenyl)-thioureido]-phenyl}-acetamide
- 346 440 N-{4-[3-(3-Chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-2-methyl-benzamide
- 347 493 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methyl-phenyl}-2,6-difluoro-benzamide
- 348 462 N-{4-[3-(3-Chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-2,6-difluoro-benzamide
- 349 531 N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-pyrrolidin-3-yl)-amino]-phenyl}-thioureido)-phenyl]-2,6-difluoro-benzamide
- 350 427 Pyridine-2-carboxylic acid {4-[3-(3-chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 351 430 Pyridine-2-carboxylic acid {4-[3-(3-chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-amide
- 352 428 Pyridine-2-carboxylic acid {4-[3-(5-chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-amide
- 353 417 Furan-2-carboxylic acid {4-[3-(5-chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-amide
- 354 496 Pyridine-2-carboxylic acid [4-(3-{3-chloro-4-[methyl-(1-methyl-pyrrolidin-3-yl)-amino]-phenyl}-thioureido)- phenyl]-amide
- 355 495 N-(3-Chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl)-2-fluoro-benzamide
- 356 467 Furan-2-carboxylic acid {3-chloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 357 515 N-{4-[3-(3-Chloro-4-cyclohexylsulfanyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 358 449 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-trifluoromethyl-phenyl}-acetamide
- 359 529 N-{4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-trifluoromethyl-phenyl}-2-fluoro-benzamide

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- 360 421 N-(4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-phenyl)-2-dimethyl-amino-acetamide
- 361 473 Furan-2-carboxylic acid (4-{3-[3-chloro-4-(2-dimethylamino-acetylamino)-phenyl]-thioureido}-phénol)-amide
- 362 501 N-(4-{3-[3-Chloro-4-(2-dimethylamino-acetylamino)-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 363 461 N-(4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-phenyl)-2-piperidin-1-yl-acetamide
- 364 541 N-(4-{3-[3-Chloro-4-(2-piperidin-1-yl-acetylamino)-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 365 513 Furan-2-carboxylic acid (4-{3-[3-chloro-4-(2-piperidin-1-yl-acetylamino)-phenyl]-thioureido}-phenyl)- amide
- 366 463 N-(4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-phenyl)-2-morpholin-4-yl-acetamide
- 367 543 N-(4-{3-[3-Chloro-4-(2-morpholin-4-yl-acetylamino)-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 368 515 Furan-2-carboxylic acid (4-{3-[3-chloro-4-(2-morpholin-4-yl-acetylamino)-phenyl]-thioureido}-phenyl)- amide
- 369 414 N-(4-[3-(3-Chloro-4-methanesulfonylamino-phenyl)-thioureido]-phenyl)-acetamide
- 370 494 N-(4-[3-(3-Chloro-4-methanesulfonylamino-phenyl)-thioureido]-phenyl)-2-fluoro-benzamide
- 371 466 Furan-2-carboxylic acid {4-[3-(3-chloro-4-methanesulfonylamino-phenyl)-thioureido]-phenyl}-amide
- 372 481 N-(4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-phenyl)-2-(2-dimethylamino-ethylsulfanyl)- acetamide
- 373 561 N-[4-(3-{3-Chloro-4-[2-(2-dimethylamino-ethylsulfanyl)-acetylamino]-phenyl}-thioureido)-phenyl]-2-fluoro-benzamide
- 374 585 N-[4-(3-{4-[(1-Benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl}-thioureido)-phenyl]-2-methyl-benzamide
- 375 523 N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-thioureido)-phenyl]-2-methyl-benzamide
- 376 510 Pyridine-2-carboxylic acid [4-(3-{3-chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-thioureido)- phenyl]-amide
- 377 347 N-{4-[3-(3-Chloro-4-vinyl-phenyl)-thioureido]-phenyl}-acetamide
- 378 441 Furan-2-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 379 452 Pyridine-2-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-

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		thioureido]-phenyl]-amide
380	487	N-[4-[3-(4-Chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl]-2,6-difluoro-benzamide
381	486	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-cyano-phenyl]-2-fluoro-benzamide
382	458	Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-3-cyano-phenyl}-amide
383	406	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-cyano-phenyl]-acetamide
384	395	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-2-methyl-isothioureido]-phenyl]-acetamide
385	396	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-2-methyl-isothioureido]-phenyl]-acetamide
386	461	N-[4-[3-(3-Chloro-4-ethylsulfanyl-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
387	489	N-[4-[3-(4-Butylsulfanyl-3-chloro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
388	411	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methoxy-phenyl]-acetamide
389	491	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methoxy-phenyl]-2-fluoro-benzamide
390	463	Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-3-methoxy-phenyl}-amide
391	531	[1,2,3]Thiadiazole-4-carboxylic acid (4-[3-[3-chloro-4-(2-piperidin-1-yl-acetyl-amino)-phenyl]-thioureido]-phenyl)-amide
392	481	N-[4-[3-(3-Chloro-4-methanesulfinyl-phenyl)-thioureido]-phenyl]-2,6-difluoro-benzamide
393	497	N-[4-[3-(3-Chloro-4-methanesulfonyl-phenyl)-thioureido]-phenyl]-2,6-difluoro-benzamide
394	459	N-[4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-2-methyl-phenyl]-2-fluoro-benzamide
395	429	N-[4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-2-methyl-phenyl]-2-fluoro-benzamide
396	533	Furan-2-carboxylic acid [4-(3-[3-chloro-4-[2-(2-dimethylamino-ethylsulfanyl)-acetylamino]-phenyl]-thioureido)-phenyl]-amide
397	458	N-[4-[3-(4-Acetylamino-3-chloro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
398	460	[2-Chloro-4-(3-{4-[(furan-2-carbonyl)-amino]-phenyl}-thioureido)-phenyl]-

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		carbamic acid ethyl ester
399	488	(2-Chloro-4-[3-[4-(2-fluoro-benzoylamino)-phenyl]-thioureido]-phenyl)-carbamic acid ethyl ester
400	440	N-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenyl]-benzamide
401	520	N-[4-[{([4-(Benzoylamino)-3-chloro-phenyl]-amino)-thioxomethyl}-amino]-phenyl]-2-fluoro-benzamide
402	529	N-[4-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-2-trifluoromethyl-phenyl]-2-fluoro-benzamide
403	492	Furan-2-carboxylic acid {4-[3-(4-benzoylamino-3-chloro-phenyl)-thioureido]-phenyl}-amide
404	416	N-[4-[3-(4-Amino-3-chloro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
405	479	N-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenyl]-2-thiomorpholin-4-yl-acetamide
406	531	Furan-2-carboxylic acid (4-[3-[3-chloro-4-(2-thiomorpholin-4-yl-acetyl-amino)-phenyl]-thioureido]-phenyl)-amide
407	559	N-(4-[3-Chloro-4-(2-thiomorpholin-4-yl-acetyl-amino)-phenyl]-thioureido)-phenyl]-2-fluoro-benzamide
408	461	N-[4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-2-methyl-phenyl]-2-fluoro-benzamide
409	430	Furan-2-carboxylic acid {4-[3-(4-acetyl-amino-3-chloro-phenyl)-thioureido]-phenyl}-amide
410	477	N-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenyl]-2-dipropylamino-acetamide
411	529	Furan-2-carboxylic acid (4-[3-[3-chloro-4-(2-dipropylamino-acetyl-amino)-phenyl]-thioureido]-phenyl)-amide
412	449	N-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenyl]-2-diethyl-amino-acetamide
413	501	Furan-2-carboxylic acid (4-[3-[3-chloro-4-(2-diethylamino-acetyl-amino)-phenyl]-thioureido]-phenyl)-amide
414	529	N-(4-[3-Chloro-4-(2-diethylamino-acetyl-amino)-phenyl]-thioureido)-phenyl]-2-fluoro-benzamide
415	447	N-[4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-phenyl]-2-pyrrolidin-1-yl-acetamide
416	499	Furan-2-carboxylic acid (4-[3-[3-chloro-4-(2-pyrrolidin-1-yl-acetyl-amino)-phenyl]-thioureido]-phenyl)-amide
417	527	N-(4-[3-Chloro-4-(2-pyrrolidin-1-yl-acetyl-amino)-phenyl]-thioureido)-phenyl]-2-fluoro-benzamide
418	475	N-[4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-3-methoxy-

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- phenyl]-2-fluoro-benzamide  
419 445 N-[4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-3-methoxy-phenyl]-2-fluoro-benzamide  
420 477 N-[4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-3-methoxy-phenyl]-2-fluoro-benzamide  
421 388 Furan-2-carboxylic acid {4-[3-(4-amino-3-chloro-phenyl)-thioureido]-phenyl}-amide  
422 527 Furan-2-carboxylic acid (4-[3-[4-(2-azepan-1-yl-acetylamino)-3-chloro-phenyl]-thioureido]-phenyl)-amide  
423 555 N-[4-(3-[4-(2-Azepan-1-yl-acetylamino)-3-chloro-phenyl]-thioureido)-phenyl]-2-fluoro-benzamide  
424 527 Furan-2-carboxylic acid [4-(3-{3-chloro-4-[2-(2-methyl-pipéridin-1-yl)-acetyl-amino]-phenyl}-thioureido)-phenyl]-amide  
425 555 N-[4-(3-{3-Chloro-4-[2-(2-methyl-piperidin-1-yl)-acetylamino]-phenyl}-thioureido)-phenyl]-2-fluoro-benzamide  
426 339 Furan-2-carboxylic acid [4-(3-pyridin-2-yl-thioureido)-phenyl]-amide  
427 339 Furan-2-carboxylic acid [4-(3-pyridin-4-yl-thioureido)-phenyl]-amide  
428 367 2-Fluoro-N-[4-(3-pyridin-3-yl-thioureido)-phenyl]-benzamide  
429 339 Furan-2-carboxylic acid [4-(3-pyridin-3-yl-thioureido)-phenyl]-amide  
430 353 Furan-2-carboxylic acid {4-[3-(3-amino-phenyl)-thioureido]-phenyl}-amide  
431 406 Furan-2-carboxylic acid {4-[3-(3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide  
432 380 2-Fluoro-N-[4-(3-m-tolyl-thioureido)-phenyl]-benzamide  
433 434 2-Fluoro-N-[4-[3-(3-trifluoromethyl-phenyl)-thioureido]-phenyl]-benzamide  
434 381 N-[4-[3-(3-Amino-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide  
435 388 Furan-2-carboxylic acid {4-[3-(3-amino-5-chloro-phenyl)-thioureido]-phenyl}-amide  
436 352 Furan-2-carboxylic acid [4-(3-m-tolyl-thioureido)-phenyl]-amide  
437 416 N-[4-[3-(2-Amino-5-chloro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide  
438 571 (2-Chloro-4-{3-[4-(2-fluoro-benzoylamino)-phenyl]-thioureido}-phenyl)-carbamic acid 2-piperidin-1-yl-ethyl ester  
439 543 [2-Chloro-4-(3-{4-[(furan-2-carbonyl)-amino]-phenyl}-thioureido)-phenyl]-carbamic acid 2-piperidin-1-yl-ethyl ester  
440 388 Furan-2-carboxylic acid {4-[3-(2-amino-5-chloro-phenyl)-thioureido]-phenyl}-amide

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- 441 363 Furan-2-carboxylic acid {4-[3-(3-cyano-phenyl)-thioureido]-phenyl}-amide
- 442 416 N-{4-[3-(3-Amino-5-chloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 443 367 2-Fluoro-N-[4-(3-pyridin-2-yl-thioureido)-phenyl]-benzamide
- 444 367 2-Fluoro-N-[4-(3-pyridin-4-yl-thioureido)-phenyl]-benzamide
- 445 374 Furan-2-carboxylic acid {4-[3-(6-chloro-pyridin-3-yl)-thioureido]-phenyl}-amide
- 446 388 Furan-2-carboxylic acid {4-[3-(2-amino-3-chloro-phenyl)-thioureido]-phenyl}-amide
- 447 396 Furan-2-carboxylic acid {4-[3-(3-hydrazinocarbonyl-phenyl)-thioureido]-phenyl}-amide
- 448 410 2-Fluoro-N-(4-[3-[3-(1-hydroxy-ethyl)-phenyl]-thioureido]-phenyl)-benzamide
- 449 414 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-hydrazinocarbonyl-phenyl)-thioureido]-phenyl}-amide
- 450 399 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-isopropyl-phenyl)-thioureido]-phenyl}-amide
- 451 380 Furan-2-carboxylic acid {4-[3-(3-isopropyl-phenyl)-thioureido]-phenyl}-amide
- 452 409 2-Fluoro-N-{4-[3-(3-isopropyl-phenyl)-thioureido]-phenyl}-benzamide
- 453 381 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-cyano-phenyl)-thioureido]-phenyl}-amide
- 454 410 N-{4-[3-(3-Dimethylamino-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 455 381 Furan-2-carboxylic acid {4-[3-(3-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 456 370 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-m-tolyl-thioureido)-phenyl]-amide
- 457 424 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 458 479 N-(3-Chloro-4-[3-(5-chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl)-2-fluoro-benzamide
- 459 449 N-(3-Chloro-4-[3-(3-chloro-4-methyl-phenyl)-thioureido]-phenyl)-2-fluoro-benzamide
- 460 481 N-(3-Chloro-4-[3-(3-chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl)-2-fluoro-benzamide
- 461 391 N-{4-[3-(3-Cyano-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 462 395 Furan-2-carboxylic acid {4-[3-(3-acetylamino-phenyl)-thioureido]-phenyl}-

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		amide
463	424	2-Fluoro-N-{4-[3-(3-hydrazinocarbonyl-phenyl)-thioureido]-phenyl}-benzamide
464	400	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(1-hydroxy-ethyl)-phenyl]-thioureido}-phenyl)-amide
465	434	N-{4-[3-(2-Amino-3-chloro-phenyl)-thioureido]-phenyl}-2,6-difluorobenzamide
466	406	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-amino-5-chloro-phenyl)-thioureido]-phenyl}-amide
467	398	Furan-2-carboxylic acid {4-[3-(3,5-dimethoxy-phenyl)-thioureido]-phenyl}-amide
468	416	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dimethoxy-phenyl)-thioureido]-phenyl}-amide
469	454	5-(3-{4-[(Furan-2-carbonyl)-amino]-phenyl}-thioureido)-isophthalic acid dimethyl ester
470	434	Isoxazole-5-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
471	392	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(6-chloro-pyridin-3-yl)-thioureido]-phenyl}-amide
472	382	Furan-2-carboxylic acid {4-(3-[3-(1-hydroxy-ethyl)-phenyl]-thioureido)-phenyl}-amide
473	368	Furan-2-carboxylic acid {4-[3-(3-methoxy-phenyl)-thioureido]-phenyl}-amide
474	354	Furan-2-carboxylic acid {4-[3-(3-hydroxy-phenyl)-thioureido]-phenyl}-amide
475	382	2-Fluoro-N-{4-[3-(3-hydroxy-phenyl)-thioureido]-phenyl}-benzamide
476	396	2-Fluoro-N-{4-[3-(3-hydroxymethyl-phenyl)-thioureido]-phenyl}-benzamide
477	423	N-{4-[3-(3-Acetylamino-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
478	413	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-acetylamino-phenyl)-thioureido]-phenyl}-amide
479	400	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-dimethylamino-phenyl)-thioureido]-phenyl}-amide
480	340	Furan-2-carboxylic acid [4-(3-pyrimidin-4-yl-thioureido)-phenyl]-amide
481	378	Furan-2-carboxylic acid {4-[3-(1H-indazol-5-yl)-thioureido]-phenyl}-amide
482	395	Furan-2-carboxylic acid [4-(3-benzothiazol-5-yl-thioureido)-phenyl]-amide
483	406	2-Fluoro-N-{4-[3-(1H-indazol-5-yl)-thioureido]-phenyl}-benzamide
484	424	N-[4-(3-Benzothiazol-5-yl-thioureido)-phenyl]-2-fluoro-benzamide

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- 485 473 5-(3-{4-[{[1,2,3]Thiadiazole-4-carbonyl}-amino]-phenyl}-thioureido)-isophthalic acid dimethyl ester
- 486 442 Furan-2-carboxylic acid (4-{3-[4-(1-azido-ethyl)-3-chloro-phenyl]-thioureido}-phenyl)-amide
- 487 396 2-Fluoro-N-{4-[3-(3-methoxy-phenyl)-thioureido]-phenyl}-benzamide
- 488 368 Furan-2-carboxylic acid {4-[3-(3-hydroxymethyl-phenyl)-thioureido]-phenyl}-amide
- 489 416 Furan-2-carboxylic acid {4-[3-(5-chloro-2-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 490 444 N-{4-[3-(5-Chloro-2-dimethylamino-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 491 506 [3-Chloro-5-(3-{4-[{[1,2,3]thiadiazole-4-carbonyl}-amino]-phenyl}-thioureido)-phenyl]-carbamic acid tert-butyl ester
- 492 470 N-(4-{3-[4-(1-Azido-ethyl)-3-chloro-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 493 337 Furan-2-carboxylic acid [4-(1H-thiazolo[5,4-b]pyridin-2-ylideneamino)-phenyl]-amide
- 494 378 Furan-2-carboxylic acid {4-[3-(1H-benzoimidazol-5-yl)-thioureido]-phenyl}-amide
- 495 392 Furan-2-carboxylic acid {4-[3-(2-methyl-1H-benzoimidazol-5-yl)-thioureido]-phenyl}-amide
- 496 406 N-{4-[3-(1H-Benzoimidazol-5-yl)-thioureido]-phenyl}-2-fluoro-benzamide
- 497 420 2-Fluoro-N-(4-[3-(2-methyl-1H-benzoimidazol-5-yl)-thioureido]-phenyl)-benzamide
- 498 452 [1,2,3]Thiadiazole-4-carboxylic acid {5-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-2-yl}-amide
- 499 445 Pyridine-2-carboxylic acid {5-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-2-yl}-amide
- 500 434 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-chloro-2-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 501 484 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[4-(2-amino-pyrimidin-4-yl)-3-chloro-phenyl]-thioureido}-phenyl)-amide
- 502 494 N-(4-{3-[4-(2-Amino-pyrimidin-4-yl)-3-chloro-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 503 434 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-2-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 504 462 N-{4-[3-(3-Chloro-2-dimethylamino-phenyl)-thioureido]-phenyl}-2,6-difluoro-benzamide

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- 505 416 Furan-2-carboxylic acid {4-[3-(3-chloro-2-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 506 445 Pyridine-2-carboxylic acid {6-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-3-yl}-amide
- 507 462 N-{6-[3-(5-Chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-3-yl}-2-fluoro-Benzamide
- 508 482 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-iodo-phenyl)-thioureido]-phenyl}-amide
- 509 413 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-tert-butyl-phenyl)-thioureido]-phenyl}-amide
- 510 387 Furan-2-carboxylic acid {4-[3-(3-chloro-benzyl)-thioureido]-phenyl}-amide
- 511 415 N-{4-[3-(3-Chloro-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 512 434 Furan-2-carboxylic acid {6-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-3-yl}-amide
- 513 435 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-bromo-phenyl)-thioureido]-phenyl}-amide
- 514 452 [1,2,3]Thiadiazole-4-carboxylic acid {6-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-pyridin-3-yl}-amide
- 515 426 [1,2,3]Thiadiazole-4-carboxylic acid {5-[3-(3,5-dichloro-phenyl)-thioureido]-pyridin-2-yl}-amide
- 516 474 Furan-2-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 517 502 N-{4-[3-(3,5-Bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 518 450 N-{4-[3-(4-Amino-3,5-dichloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 519 539 N-{4-[3-(4-Amino-3,5-dibromo-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 520 392 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-chloro-pyridin-3-yl)-thioureido]-phenyl}-amide
- 521 529 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-amino-3,5-dibromo-phenyl)-thioureido]-phenyl}-amide
- 522 434 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-5-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 523 444 N-{4-[3-(3-Chloro-5-dimethylamino-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 524 416 Furan-2-carboxylic acid {4-[3-(3-chloro-5-dimethylamino-phenyl)-thioureido]-phenyl}-amide

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- 525 436 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-bromo-pyridin-3-yl)-thioureido]-phenyl}-amide
- 526 379 Furan-2-carboxylic acid {4-[3-(1H-benzotriazol-5-yl)-thioureido]-phenyl}-amide
- 527 425 N-{4-[3-(1H-Benzotriazol-5-yl)-thioureido]-phenyl}-2,6-difluoro-benzamide
- 528 388 N-[4-({[2-(3-Chloro-phenyl)-hydrazino]-thioxomethyl}-amino)-phenyl]-furan-2-carboxamide
- 529 416 N-[4-({[2-(3-Chloro-phenyl)-hydrazino]-thioxomethyl}-amino)-phenyl]-2-fluoro-benzamide
- 530 456 Furan-2-carboxylic acid {4-[3-(2-amino-3-chloro-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 531 513 N-{4-[3-(3-Bromo-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 532 503 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-bromo-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 533 374 {4-[(Furan-2-carbonyl)-amino]-phenyl}-thiocarbamic acid O-(3-chloro-phenyl) ester
- 534 474 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-amino-3-chloro-5-trifluoro-methyl-phenyl)-thioureido]-phenyl}-amide
- 535 508 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-piperidin-1-yl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 536 380 N-[4-(3-Benzyl-thioureido)-phenyl]-2-fluoro-benzamide
- 537 439 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,4-dichloro-benzyl)-thioureido]-phenyl}-amide
- 538 449 N-{4-[3-(3,4-Dichloro-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 539 370 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-benzyl-thioureido)-phenyl]-amide
- 540 424 N-[4-(3-Benzo[1,3]dioxol-5-ylmethyl-thioureido)-phenyl]-2-fluoro-benzamide
- 541 414 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-benzo[1,3]dioxol-5-ylmethyl-thioureido)-phenyl]-amide
- 542 506 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 543 516 N-{4-[3-(3,5-Bis-trifluoromethyl-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 544 352 Furan-2-carboxylic acid [4-(3-benzyl-thioureido)-phenyl]-amide
- 545 421 Furan-2-carboxylic acid {4-[3-(3,4-dichloro-benzyl)-thioureido]-phenyl}-amide

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- 546 396 Furan-2-carboxylic acid [4-(3-benzo[1,3]dioxol-5-ylmethyl-thioureido)-phenyl]-amide
- 547 488 Furan-2-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 548 503 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-bromo-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 549 529 N-{4-[3-(3-Bromo-4-trifluoromethoxy-phenyl)-thioureido]-phenyl}-2-fluorobenzamide
- 550 519 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-bromo-4-trifluoromethoxy-phenyl)-thioureido]-phenyl}-amide
- 551 473 Furan-2-carboxylic acid {4-[3-(3-chloro-4-trifluoromethylsulfanyl-phenyl)-thioureido]-phenyl}-amide
- 552 412 2-Fluoro-N-(4-(3-[2-(3-fluoro-phenyl)-ethyl]-thioureido)-phenyl)-benzamide
- 553 412 2-Fluoro-N-(4-(3-[2-(4-fluoro-phenyl)-ethyl]-thioureido)-phenyl)-benzamide
- 554 402 [1,2,3]Thiadiazole-4-carboxylic acid (4-(3-[2-(3-fluoro-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 555 402 [1,2,3]Thiadiazole-4-carboxylic acid (4-(3-[2-(4-fluoro-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 556 495 [1,2,3]Thiadiazole-4-carboxylic acid (4-(3-[3-(2-methyl-butyl)-5-trifluoromethyl-phenyl]-thioureido)-phenyl)-amide
- 557 481 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-isobutyl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 558 523 [1,2,3]Thiadiazole-4-carboxylic acid (4-(3-[3-(4-methyl-piperazin-1-yl)-5-trifluoromethyl-phenyl]-thioureido)-phenyl)-amide
- 559 510 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-morpholin-4-yl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 560 494 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-pyrrolidin-1-yl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 561 384 Furan-2-carboxylic acid (4-(3-[2-(4-fluoro-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 562 419 [1,2,3]Thiadiazole-4-carboxylic acid (4-(3-[2-(3-chloro-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 563 429 N-(4-(3-[2-(3-Chloro-phenyl)-ethyl]-thioureido)-phenyl)-2-fluorobenzamide
- 564 401 Furan-2-carboxylic acid (4-(3-[2-(3-chloro-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 565 402 [1,2,3]Thiadiazole-4-carboxylic acid (4-(3-[1-(4-fluoro-phenyl)-ethyl]-thioureido)-phenyl)-amide

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- 566 504 2-Fluoro-N-{4-[3-(3-pyrrolidin-1-yl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-benzamide
- 567 477 N-{4-[3-(3-Dimethylamino-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 568 520 2-Fluoro-N-{4-[3-(3-morpholin-4-yl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-benzamide
- 569 533 2-Fluoro-N-(4-{3-[3-(4-methyl-piperazin-1-yl)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-benzamide
- 570 518 2-Fluoro-N-{4-[3-(3-piperidin-1-yl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-benzamide
- 571 468 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-dimethylamino-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 572 405 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-benzyl)-thioureido]-phenyl}-amide
- 573 384 Furan-2-carboxylic acid (4-{3-[2-(3-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 574 366 Furan-2-carboxylic acid [4-(3-phenethyl-thioureido)-phenyl]-amide
- 575 384 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-phenethyl-thioureido)-phenyl]-amide
- 576 394 2-Fluoro-N-[4-(3-phenethyl-thioureido)-phenyl]-benzamide
- 577 505 2-Fluoro-N-(4-{3-[3-(2-methyl-butyl)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-benzamide
- 578 491 2-Fluoro-N-{4-[3-(3-isobutyl-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-benzamide
- 579 388 Furan-2-carboxylic acid {4-[3-(3,5-difluoro-benzyl)-thioureido]-phenyl}-amide
- 580 416 N-{4-[3-(3,5-Difluoro-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 581 406 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-difluoro-benzyl)-thioureido]-phenyl}-amide
- 582 421 Furan-2-carboxylic acid {4-[3-(3,5-dichloro-benzyl)-thioureido]-phenyl}-amide
- 583 449 N-{4-[3-(3,5-Dichloro-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 584 439 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dichloro-benzyl)-thioureido]-phenyl}-amide
- 585 438 Furan-2-carboxylic acid {4-[3-(3-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 586 466 2-Fluoro-N-{4-[3-(3-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-benzamide

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- 587 456 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 588 384 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(1-phenyl-ethyl)-thioureido]-phenyl}-amide
- 589 394 2-Fluoro-N-{4-[3-(1-phenyl-ethyl)-thioureido]-phenyl}-benzamide
- 590 366 Furan-2-carboxylic acid {4-[3-(1-phenyl-ethyl)-thioureido]-phenyl}-amide
- 591 412 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 592 384 Furan-2-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 593 413 N-{4-[3-(1-tert-Butyl-1H-imidazol-2-yl)-thioureido]-phenyl}-2-fluoro-benzamide
- 594 510 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[3-(isobutyl-methyl-amino)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-amide
- 595 510 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[3-(3-hydroxy-pyrrolidin-1-yl)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-amide
- 596 520 2-Fluoro-N-(4-{3-[3-(isobutyl-methyl-amino)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-benzamide
- 597 510 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[3-(butyl-methyl-amino)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-amide
- 598 520 N-(4-{3-[3-(Butyl-methyl-amino)-5-trifluoromethyl-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 599 520 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3,5-bis-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 600 442 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-fluoro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 601 522 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-piperidin-1-yl-3-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 602 482 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-dimethylamino-3-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 603 381 Furan-2-carboxylic acid (4-{3-[2-(4-amino-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 604 445 Furan-2-carboxylic acid (4-{3-[2-(4-bromo-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 605 380 Furan-2-carboxylic acid {4-[3-(2-p-tolyl-ethyl)-thioureido]-phenyl}-amide
- 606 463 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-bromo-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 607 396 Furan-2-carboxylic acid (4-{3-[2-(3-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-amide

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- 608 403 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(1-tert-butyl-1H-imidazol-2-yl)-thioureido]-phenyl}-amide
- 609 384 Furan-2-carboxylic acid {4-[3-(1-tert-butyl-1H-imidazol-2-yl)-thioureido]-phenyl}-amide
- 610 492 N-{4-[3-(4-Dimethylamino-3-trifluoromethyl-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 611 427 Furan-2-carboxylic acid (4-{3-[2-(3,4-dimethoxy-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 612 380 Furan-2-carboxylic acid {4-[3-(3-phenyl-propyl)-thioureido]-phenyl}-amide
- 613 399 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-phenyl-propyl)-thioureido]-phenyl}-amide
- 614 502 Furan-2-carboxylic acid (4-{3-[2-(3,5-bis-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 615 550 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-iodo-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 616 532 2-Fluoro-N-{4-[3-(4-piperidin-1-yl-3-trifluoromethyl-benzyl)-thioureido]-phenyl}-benzamide
- 617 537 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[4-(4-methyl-piperazin-1-yl)-3-trifluoromethyl-benzyl]-thioureido}-phenyl)-amide
- 618 482 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-dimethylamino-5-trifluoromethyl-benzyl)-thioureido]-phenyl}amide
- 619 488 Furan-2-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido-methyl]-phenyl}-amide
- 620 421 Furan-2-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureidomethyl]-phenyl}-amide
- 621 421 Furan-2-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureidomethyl]-phenyl}-amide
- 622 455 Furan-2-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido-methyl]-phenyl}-amide
- 623 466 2-Fluoro-N-{4-[3-(4-fluoro-3-trifluoromethyl-benzyl)-thioureido]-phenyl}-benzamide
- 624 456 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-fluoro-3-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 625 410 2-Fluoro-N-{4-[3-(2-phenoxy-ethyl)-thioureido]-phenyl}-benzamide
- 626 382 Furan-2-carboxylic acid {4-[3-(2-phenoxy-ethyl)-thioureido]-phenyl}-amide
- 627 400 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-phenoxy-ethyl)-thioureido]-phenyl}-amide
- 628 409 2-Fluoro-N-{4-[3-(3-phenyl-propyl)-thioureido]-phenyl}-benzamide

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- 629 425 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-trifluoromethyl-pyridin-3-yl)-thioureido]-phenyl}-amide
- 630 439 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido-methyl]-phenyl}-amide
- 631 473 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureidomethyl]-phenyl}-amide
- 632 381 2-Fluoro-N-[4-(3-pyridin-3-ylmethyl-thioureido)-phenyl]-benzamide
- 633 353 Furan-2-carboxylic acid [4-(3-pyridin-3-ylmethyl-thioureido)-phenyl]-amide
- 634 371 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-pyridin-3-ylmethyl-thioureido)-phenyl]-amide
- 635 439 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido-methyl]-phenyl}-amide
- 636 492 N-{4-[3-(3-Dimethylamino-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 637 415 [1,2,3]Thiadiazole-4-carboxylic acid (4-[2-(3-methoxy-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 638 399 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-p-tolyl-ethyl)-thioureido]-phenyl}-amide
- 639 445 [1,2,3]Thiadiazole-4-carboxylic acid (4-[2-(3,4-dimethoxy-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 640 506 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureidomethyl]-phenyl}-amide
- 641 516 N-{4-[3-(3,5-Bis-trifluoromethyl-phenyl)-thioureidomethyl]-phenyl}-2-fluoro-benzamide
- 642 449 N-{4-[3-(3,5-Dichloro-phenyl)-thioureidomethyl]-phenyl}-2-fluoro-benzamide
- 643 449 N-{4-[3-(3,4-Dichloro-phenyl)-thioureidomethyl]-phenyl}-2-fluoro-benzamide
- 644 448 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-acetylamino-5-chloro-phenyl)-thioureido]-phenyl}-amide
- 645 453 [1,2,3]Thiadiazole-4-carboxylic acid (4-[3-[2-(3,4-dichloro-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 646 413 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(1-methyl-3-phenyl-propyl)-thioureido]-phenyl}-amide
- 647 463 [1,2,3]Thiadiazole-4-carboxylic acid (4-[3-[1-(4-bromo-phenyl)-ethyl]-thioureido)-phenyl)-amide
- 648 413 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-phenyl-butyl)-thioureido]-phenyl}-amide

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- 649 397 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-indan-1-yl-thioureido)-phenyl]-amide
- 650 400 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-methoxy-benzyl)-thioureido]-phenyl}-amide
- 651 415 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 652 415 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 653 506 N-(4-{3-[2-(3-Dimethylamino-5-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 654 510 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[3-dimethylamino-propyl]-5-trifluoromethyl-phenyl}-thioureido)-phenyl)-amide
- 655 417 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-phenylsulfanyl-ethyl)-thioureido]-phenyl}-amide
- 656 427 2-Fluoro-N-{4-[3-(2-phenylsulfanyl-ethyl)-thioureido]-phenyl}-benzamide
- 657 399 Furan-2-carboxylic acid {4-[3-(2-phenylsulfanyl-ethyl)-thioureido]-phenyl}-amide
- 658 381 2-Fluoro-N-[4-(3-pyridin-4-ylmethyl-thioureido)-phenyl]-benzamide
- 659 353 Furan-2-carboxylic acid [4-(3-pyridin-4-ylmethyl-thioureido)-phenyl]-amide
- 660 371 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-pyridin-4-ylmethyl-thioureido)-phenyl]-amide
- 661 506 2-Fluoro-N-{4-[3-(3-iodo-benzyl)-thioureido]-phenyl}-benzamide
- 662 478 Furan-2-carboxylic acid {4-[3-(3-iodo-benzyl)-thioureido]-phenyl}-amide
- 663 496 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-iodo-benzyl)-thioureido]-phenyl}-amide
- 664 479 N-(4-{3-[2-(3,5-Dichloro-phenoxy)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 665 451 Furan-2-carboxylic acid (4-{3-[2-(3,5-dichloro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 666 445 N-(4-{3-[2-(3-Chloro-phenoxy)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 667 417 Furan-2-carboxylic acid (4-{3-[2-(3-chloro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 668 435 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-chloro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 669 466 2-Fluoro-N-{4-[3-(2-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-benzamide

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- 670 438 Furan-2-carboxylic acid {4-[3-(2-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 671 456 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 672 416 N-{4-[3-(3,4-Difluoro-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 673 452 N-(4-{3-[2-(4-Dimethylamino-3-methyl-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 674 496 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-dimethylamino-5-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 675 388 Furan-2-carboxylic acid {4-[3-(3,4-difluoro-benzyl)-thioureido]-phenyl}-amide
- 676 406 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,4-difluoro-benzyl)-thioureido]-phenyl}-amide
- 677 433 N-{4-[3-(3-Chloro-4-fluoro-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 678 495 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-bromo-phenylsulfanyl)-ethyl]-thioureido}-phenyl)-amide
- 679 477 Furan-2-carboxylic acid (4-{3-[2-(3-bromo-phenylsulfanyl)-ethyl]-thioureido}-phenyl)-amide
- 680 505 N-(4-{3-[2-(3-Bromo-phenylsulfanyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 681 493 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-bromo-4-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 682 493 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(5-bromo-2-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 683 419 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-chloro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 684 402 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 685 419 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-chloro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 686 475 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,3-diphenyl-propyl)-thioureido]-phenyl}-amide
- 687 547 2-Fluoro-N-(4-{3-[4-(4-methyl-piperazin-1-yl)-3-trifluoromethyl-benzyl]-thioureido}-phenyl)-benzamide
- 688 469 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3,5-dichloro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 689 423 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-fluoro-benzyl)-thioureido]-phenyl}-amide

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- 690 427 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-tert-butyl-benzyl)-thioureido]-phenyl}-amide
- 691 399 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dimethyl-benzyl)-thioureido]-phenyl}-amide
- 692 442 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-dimethylamino-3-methyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 693 479 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-bromo-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 694 526 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-iodo-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 695 489 N-(4-{3-[2-(4-Bromo-phenoxy)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 696 536 2-Fluoro-N-(4-{3-[2-(4-iodo-phenoxy)-ethyl]-thioureido}-phényl)-benzamide
- 697 461 Furan-2-carboxylic acid (4-{3-[2-(4-bromo-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 698 508 Furan-2-carboxylic acid (4-{3-[2-(4-iodo-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 699 408 Oxazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
- 700 424 Thiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 701 491 Thiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 702 408 Oxazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 703 469 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3,4-dichloro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 704 424 Thiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
- 705 458 Thiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 706 400 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-phenylamino-ethyl)-thioureido]-phenyl}-amide
- 707 453 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2,4-dichloro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 708 452 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 709 453 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2,6-dichloro-phenyl)-ethyl]-thioureido}-phenyl)-amide

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		thioureido}-phenyl)-amide
710	485	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3,4-dichloro-phenylsulfanyl)-ethyl]-thioureido}-phenyl)-amide.
711	503	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-fluoro-5-trifluoromethyl-phenylsulfanyl)-ethyl]-thioureido}-phenyl)-amide
712	668	N-(4-{3-[3-Chloro-5-(3-{4-[{1,2,3}thiadiazole-4-carbonyl]-amino]-phenyl)-thioureido}-phenyl]-thioureido}-[1,2,3]thiadiazole-4-carboxamide
713	413	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-ethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
714	442	Oxazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
715	475	Oxazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
716	420	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3,4-difluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
717	452	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
718	435	Furan-2-carboxylic acid (4-{3-[2-(3,4-dichloro-phenyl)-ethyl]-thioureido}-phenyl)-amide
719	463	N-(4-{3-[2-(3,4-Dichloro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
720	420	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3,5-difluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
721	412	2-Fluoro-N-(4-{3-[2-(2-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
722	429	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-nitro-phenyl)-ethyl]-thioureido}-phenyl)-amide
723	399	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(1-methyl-2-phenyl-ethyl)-thioureido]-phenyl}-amide
724	437	N-{4-[3-(4-tert-Butyl-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
725	409	N-{4-[3-(3,5-Dimethyl-benzyl)-thioureido]-phenyl}-2-fluoro-benzamide
726	400	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-hydroxy-1-phenyl-ethyl)-thioureido]-phenyl}-amide
727	409	2-Fluoro-N-{4-[3-(1-methyl-1-phenyl-ethyl)-thioureido]-phenyl}-benzamide
728	399	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(1-methyl-1-phenyl-ethyl)-thioureido]-phenyl}-amide
729	405	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-chloro-benzyl)-thioureido]-phenyl}-amide

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- 730 388 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-fluoro-benzyl)-thioureido]-phenyl}-amide
- 731 438 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 732 388 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-fluoro-benzyl)-thioureido]-phenyl}-amide
- 733 435 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-chloro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 734 479 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-bromo-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 735 418 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-fluoro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 736 418 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-fluoro-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 737 486 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-fluoro-5-trifluoromethyl-phenoxy)-ethyl]-thioureido}-phenyl)-amide
- 738 384 Furan-2-carboxylic acid (4-{3-[2-(2-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 739 435 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-bromo-phenyl)-thioureido]-phenyl}-amide
- 740 374 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-fluoro-phenyl)-thioureido]-phenyl}-amide
- 741 388 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-fluoro-benzyl)-thioureido]-phenyl}-amide
- 742 405 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-chloro-benzyl)-thioureido]-phenyl}-amide
- 743 449 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-bromo-benzyl)-thioureido]-phenyl}-amide
- 744 332 N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-acetamide
- 745 438 Thiazole-4-carboxylic acid {4-[3-(3,4-dichloro-benzyl)-thioureido]-phenyl}-amide
- 746 455 Thiazole-4-carboxylic acid {4-[3-(2-fluoro-5-trifluoromethyl-benzyl)-thioureido]-phenyl}-amide
- 747 426 Thiazole-4-carboxylic acid {4-[3-(4-tert-butyl-benzyl)-thioureido]-phenyl}-Amide
- 748 374 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-fluoro-phenyl)-thioureido]-phenyl}-amide
- 749 374 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-fluoro-phenyl)-thioureido]-

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		phenyl)-amide
750	526	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-iodo-phenoxy)-ethyl]-thioureido}-phenyl)-amide
751	409	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-phenyl-acetamide
752	425	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-methoxy-benzamide
753	425	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-3-methoxy-benzamide
754	425	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-4-methoxy-benzamide
755	429	2-Chloro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
756	429	4-Chloro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
757	453	Acetic acid 4-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenylcarbamoyl)-phenyl ester
758	394	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
759	395	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-isonicotinamide
760	410	N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-4-hydroxy-benzamide
761	429	3-Chloro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
762	470	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-fluoro-5-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
763	520	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2,4-bis-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
764	470	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-fluoro-3-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
765	438	4-Dimethylamino-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
766	470	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-fluoro-3-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
767	470	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(2-fluoro-5-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-amide
768	510	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-iodo-phenyl)-ethyl]-thioureido}-phenyl)-amide
769	470	[1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(4-fluoro-2-trifluoromethyl-

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- phenyl)-ethyl]-thioureido}-phenyl)-amide
- 770 463 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[2-(3-bromo-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 771 427 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-propyl]-thioureido}-phenyl)-benzamide
- 772 475 2-Fluoro-N-(4-{3-[(4-fluoro-phenyl)-phenyl-methyl]-thioureido}-phenyl)-benzamide
- 773 455 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-pentyl]-thioureido}-phenyl)-benzamide
- 774 489 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-2-phenyl-ethyl]-thioureido}-phenyl)-benzamide
- 775 409 2-Fluoro-N-{4-[3-(1-o-tolyl-ethyl)-thioureido]-phenyl}-benzamide
- 776 409 2-Fluoro-N-{4-[3-(1-m-tolyl-ethyl)-thioureido]-phenyl}-benzamide
- 777 425 2-Fluoro-N-(4-{3-[1-(4-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 778 412 2-Fluoro-N-(4-{3-[1-(2-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 779 429 N-(4-{3-[1-(3-Chloro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 780 473 N-(4-{3-[1-(3-Bromo-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 781 429 N-(4-{3-[1-(4-Chloro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 782 409 2-Fluoro-N-{4-[3-(1-p-tolyl-ethyl)-thioureido]-phenyl}-benzamide
- 783 473 N-(4-{3-[1-(2-Bromo-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 784 429 N-(4-{3-[1-(2-Chloro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 785 462 2-Fluoro-N-(4-{3-[1-(2-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 786 462 2-Fluoro-N-(4-{3-[1-(3-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 787 462 2-Fluoro-N-(4-{3-[1-(4-trifluoromethyl-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 788 425 2-Fluoro-N-(4-{3-[1-(2-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 789 425 2-Fluoro-N-(4-{3-[1-(3-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-benzamide

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- 790 441 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-2-methyl-propyl]-thioureido}-phenyl)- benzamide
- 791 419 N-(4-{3-[1-(3-Cyano-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 792 419 N-(4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido }-phenyl)-2-fluoro-benzamide
- 793 438 N-(4-{3-[1-(4-Dimethylamino-phenyl)-ethyl]-thioureido }-phenyl)-2-fluoro- benzamide
- 794 438 N-(4-{3-[1-(3-Dimethylamino-phenyl)-ethyl]-thioureido }-phenyl)-2-fluoro- benzamide
- 795 473 2-Bromo-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido }-phenyl)- benzamide
- 796 446 Quinoline-2-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 797 410 2-Fluoro-N-{4-[3-(2-hydroxy-1-phenyl-ethyl)-thioureido]-phenyl}- benzamide
- 798 332 2-Fluoro-N-[4-(3-isopropyl-thioureido)-phenyl]-benzamide
- 799 445 2-Fluoro-N-{4-[3-(1-naphthalen-2-yl-ethyl)-thioureido]-phenyl}-benzamide
- 800 412 3-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido }-phenyl)-benzamide
- 801 412 4-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido }-phenyl)-benzamide
- 802 384 2-Fluoro-N-{4-[3-(1-furan-2-yl-ethyl)-thioureido]-phenyl}-benzamide
- 803 395 2-Fluoro-N-{4-[3-(1-pyridin-4-yl-ethyl)-thioureido]-phenyl}-benzamide
- 804 397 2-Fluoro-N-(4-{3-[1-(1-methyl-1H-pyrrol-2-yl)-ethyl]-thioureido}-phenyl)- benzamide
- 805 401 2-Fluoro-N-{4-[3-(1-thiophen-3-yl-ethyl)-thioureido]-phenyl}-benzamide
- 806 445 N-{4-[3-(3-Chloro-4-ethoxy-phenyl)-thioureido]-phenyl}-2-fluoro- benzamide
- 807 459 N-{4-[3-(3-Chloro-4-propoxy-phenyl)-thioureido]-phenyl}-2-fluoro- benzamide
- 808 459 N-{4-[3-(3-Chloro-4-isopropoxy-phenyl)-thioureido]-phenyl}-2-fluoro- benzamide
- 809 473 N-{4-[3-(4-Butoxy-3-chloro-phenyl)-thioureido]-phenyl}-2-fluoro- benzamide
- 810 522 2-Fluoro-N-{4-[3-(3-iodo-4-methoxy-phenyl)-thioureido]-phenyl}- benzamide
- 811 475 N-{4-[3-(3-Bromo-4-methoxy-phenyl)-thioureido]-phenyl}-2-fluoro- benzamide
- 812 520 N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-iodo-benzamide

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- 813      346      N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-propionamide  
 814      286      N-[4-(3-Phenyl-thioureido)-phenyl]-acetamide

**EXAMPLE 815 (METHOD 32)**

[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2,5-dichloro-phenyl)-thioureido]-phenyl}-amide

5

To a solution of 2,5-dichloroaniline (0.16 g) in tetrahydrofuran (20 mL) is added freshly prepared 1,1'-thiocarbonyldiimidazole (0.20 g) and the mixture is stirred for approximately 30 minutes at room temperature. [1,2,3]-Thiadiazole-4-carboxylic acid (4-amino-phenyl) amide (0.22 g) is added to the reaction flask and the mixture is 10 stirred for approximately 6 hours. The solvent is then removed by evaporation under reduced pressure and warm acetonitrile (3 mL) is added. After 15 hours the mixture is filtered and the collected precipitate is washed with acetonitrile then diethyl ether, and air dried to provide the desired product as a white powder.

15 Using the above procedure and appropriate starting materials the following compounds were prepared:

<u>EX. NO.</u>	<u>M+H</u>	<u>COMPOUND NAME</u>
816	321	N-{4-[3-(3-Chloro-phenyl)-thioureido]-phenyl}-acetamide
817	413	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-benzamide
818	443	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-2-methoxy-benzamide
819	443	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-3-methoxy-benzamide
820	443	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-4-methoxy-benzamide
821	431	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-4-methoxy-benzamide
822	431	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-3-fluoro-benzamide
823	431	N-{4-[3-(3-Chloro-4-methoxy-phenyl)-thioureido]-phenyl}-4-fluoro-benzamide
824	437	Furan-2-carboxylic acid {4-[3-(3,5-dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-amide
825	511	{4-[3-(5-Bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-carbamic acid hexyl ester
826	481	Hexanoic acid {4-[3-(5-bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-

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- amide
- 827 505 N-{4-[3-(5-Bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 828 477 Furan-2-carboxylic acid {4-[3-(5-bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-amide
- 829 501 N-{4-[3-(5-Bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-methyl-benzamide
- 830 517 N-{4-[3-(5-Bromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-4-methoxy-benzamide
- 831 395 N-{4-[3-(5-Chloro-2-ethoxy-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 832 395 N-{4-[3-(5-Chloro-4-ethoxy-2-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 833 423 N-{4-[3-(2-Butoxy-5-chloro-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 834 423 N-{4-[3-(4-Butoxy-5-chloro-2-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 835 457 N-{4-[3-(2-Benzyl-5-chloro-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 836 457 N-{4-[3-(4-Benzyl-5-chloro-2-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 837 421 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-methoxy-phenyl)-thioureido]-phenyl}-amide
- 838 424 2-{4-[3-(4-Acetyl-amino-phenyl)-thioureido]-2-chloro-5-methoxy-phenoxy}-acetamide
- 839 367 N-{4-[3-(5-Chloro-2-hydroxy-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide
- 840 367 N-{4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-acetamide
- 841 447 N-[4-(3-(3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl)-thioureido]-phenyl]-acetamide
- 842 426 N-(4-[3-(3-Chloro-4-(methyl-phenyl-amino)-phenyl]-thioureido)-phenyl)-acetamide
- 843 509 N-[4-(3-[4-(1-Benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl)-thioureido]-acetamide
- 844 418 N-(4-[3-Chloro-4-(cyclopentyl-methyl-amino)-phenyl]-thioureido)-phenyl)-acetamide
- 845 433 N-[4-(3-Chloro-4-[methyl-(1-methyl-pyrrolidin-3-yl)-amino]-phenyl)-thioureido]-acetamide
- 846 419 Furan-2-carboxylic acid {4-[3-(3-chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-amide
- 847 447 N-{4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide

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- 848 465 N-{4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-2,6-difluoro-benzamide
- 849 445 N-{4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 850 441 N-{4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-2-methyl-benzamide
- 851 434 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-amide
- 852 444 N-{4-[3-(3-Chloro-4-dimethylamino-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 853 517 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-{3-chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-thioureido)-phenyl]-amide
- 854 579 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-{4-[(1-benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl}-thioureido)-phenyl]-amide
- 855 527 N-[4-(3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
- 856 435 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(5-chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-amide
- 857 589 N-[4-(3-{4-[(1-Benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl}-thioureido)-phenyl]-2-fluoro-benzamide
- 858 501 Furan-2-carboxylic acid {4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-3-trifluoromethyl-phenyl}-amide
- 859 366 2-Fluoro-N-[4-(3-phenyl-thioureido)-phenyl]-benzamide
- 860 338 Furan-2-carboxylic acid [4-(3-phenyl-thioureido)-phenyl]-amide
- 861 356 [1,2,3]Thiadiazole-4-carboxylic acid [4-(3-phenyl-thioureido)-phenyl]-amide
- 862 365 N-(4-{3-[3-Chloro-4-(1-hydroxy-ethyl)-phenyl]-thioureido}-phenyl)-acetamide
- 863 435 [1,2,3]Thiadiazole-4-carboxylic acid (4-{3-[3-chloro-4-(1-hydroxy-ethyl)-phenyl]-thioureido}-phenyl)-amide
- 864 365 N-(4-{3-[3-Chloro-4-(2-hydroxy-ethyl)-phenyl]-thioureido}-phenyl)-acetamide
- 865 445 N-(4-{3-[3-Chloro-4-(1-hydroxy-ethyl)-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 866 417 Furan-2-carboxylic acid (4-{3-[3-chloro-4-(1-hydroxy-ethyl)-phenyl]-thioureido}-phenyl)-amide
- 867 371 [1;2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-amino-phenyl)-thioureido]-phenyl}-amide
- 868 501 Furan-2-carboxylic acid {4-[3-(3-bromo-4-trifluoromethoxy-phenyl)-thioureido]-phenyl}-amide

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- 869 423 N-{4-[3-(3-tert-Butyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 870 440 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-chloro-3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 974 485 N-{4-[3-(1-Benzofuran-2-yl-ethyl)-thioureido]-phenyl}-2-trifluoromethyl-benzamide
- 975 412 N-(4-Fluoro-phenyl)-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-benzamide
- 976 446 Isoquinoline-1-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 977 468 Isoquinoline-1-carboxylic acid {4-[3-(1-benzofuran-2-yl-ethyl)-thioureido]-phenyl}-amide
- 978 506 Isoquinoline-1-carboxylic acid {4-[3-[1-(4-bromo-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 979 453 Isoquinoline-1-carboxylic acid {4-[3-[1-(4-cyano-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 980 435 Benzofuran-2-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 981 457 Benzofuran-2-carboxylic acid {4-[3-(1-benzofuran-2-yl-ethyl)-thioureido]-phenyl}-amide
- 982 495 Benzofuran-2-carboxylic acid {4-[3-[1-(4-bromo-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 983 442 Benzofuran-2-carboxylic acid {4-[3-[1-(4-cyano-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 984 446 Isoquinoline-3-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 985 468 Isoquinoline-3-carboxylic acid {4-[3-(1-benzofuran-2-yl-ethyl)-thioureido]-phenyl}-amide
- 986 453 Isoquinoline-3-carboxylic acid {4-[3-[1-(4-cyano-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 987 506 Isoquinoline-3-carboxylic acid {4-[3-[1-(4-bromo-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 988 446 Quinoline-3-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 989 446 Quinoline-4-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 990 446 Quinoline-6-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 991 446 Quinoline-8-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide

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- 992 462 N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-trifluoromethyl-benzamide
- 993 419 2-Cyano-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide
- 994 473 N-{4-[3-(3-Chloro-4-isobutoxy-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 995 414 2-Fluoro-N-{4-[3-(3-fluoro-4-methoxy-phenyl)-thioureido]-phenyl}-benzamide
- 996 475 N-(4-{3-[3-Chloro-4-(2-methoxy-ethoxy)-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 997 398 2-Fluoro-N-{4-[3-(3-fluoro-4-methyl-phenyl)-thioureido]-phenyl}-benzamide
- 998 464 2-Fluoro-N-{4-[3-(4-methoxy-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-benzamide
- 999 449 N-{4-[3-(2-Amino-5-trifluoromethyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 1000 459 N-(4-{3-[1-(3-Chloro-4-methoxy-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1001 417 N-{4-[3-(5-Chloro-2-hydroxy-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 1002 435 N-{4-[3-(1-Benzofuran-2-yl-ethyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 1003 448 2-Fluoro-N-{4-[3-(4-methyl-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-benzamide
- 1004 473 (S)-N-(4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1005 473 N-(4-{3-[(1R)-1-(4-Bromo-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1006 494 2-Fluoro-N-(4-{3-[2-methoxy-4-(2,2,2-trifluoro-ethoxy)-phenyl]-thioureido}-phenyl)-benzamide
- 1007 399 N-{4-[3-(2-Amino-5-fluoro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 1008 502 N-(4-{3-[1-(4-Dimethylsulfamoyl-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1009 542 2-Fluoro-N-[4-(3-{1-[4-(piperidine-1-sulfonyl)-phenyl]-ethyl}-thioureido)-phenyl]-benzamide
- 1010 562 N-(4-{3-[2,4-Bis-(2,2,2-trifluoro-ethoxy)-phenyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1011 409 2-Fluoro-N-{4-[3-((1S)-1-p-tolyl-ethyl)-thioureido]-phenyl}-benzamide
- 1012 409 2-Fluoro-N-{4-[3-((1R)-1-p-tolyl-ethyl)-thioureido]-phenyl}-benzamide
- 1013 394 2-Fluoro-N-{4-[3-((1S)-1-phenyl-ethyl)-thioureido]-phenyl}-benzamide
- 1014 429 N-(4-{3-[(1R)-1-(4-Chloro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1015 429 N-(4-{3-[(1S)-1-(4-Chloro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1016 394 2-Fluoro-N-{4-[3-((1R)-1-phenyl-ethyl)-thioureido]-phenyl}-benzamide

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- 1017 432 N-(4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido}-phenyl)-2-methoxy-benzamide  
1018 447 N-{4-[3-(1-Benzofuran-2-yl-ethyl)-thioureido]-phenyl}-2-methoxy-benzamide  
1019 485 N-(4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-phenyl)-2-methoxy-benzamide  
1020 419 3-Cyano-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide  
1021 462 N-(4-{3-[1-(4-Fluoro-phenyl)-ethyl]-thioureido}-phenyl)-4-trifluoromethyl-  
benzamide  
1022 419 4-Cyano-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-benzamide  
1023 469 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2,3,5,6-tetramethyl-  
phenyl)-benzamide  
1024 480 N-(4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido}-2,5-dimethoxy-phenyl)-2-fluoro-  
benzamide  
1025 473 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2,5-dimethoxy-phenyl)-  
benzamide  
1026 530 N-{3,5-Dichloro-4-[3-(5-chloro-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-2-  
fluoro-benzamide  
1027 447 N-(3-Chloro-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-  
benzamide  
1028 480 2,3,4,5-Tetrafluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-3-methyl-  
phenyl)-benzamide  
1029 462 2,4,5-Trifluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-3-methyl-phenyl)-  
benzamide  
1030 427 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-3-methyl-phenyl)-  
benzamide  
1031 457 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-methoxy-5-methyl-  
phenyl)-benzamide  
1032 443 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-3-methoxy-phenyl)-  
benzamide  
1033 570 N-(2,6-Dibromo-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-  
benzamide  
1034 480 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-trifluoromethyl-  
phenyl)-benzamide  
1035 541 N-(4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-trifluoromethyl-phenyl)-2-  
fluoro-benzamide  
1036 487 N-(4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido}-2-trifluoromethyl-phenyl)-2-  
fluoro-benzamide  
1037 503 N-{4-[3-(1-Benzofuran-2-yl-ethyl)-thioureido]-2-trifluoromethyl-phenyl}-2-fluoro-  
benzamide

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- 1038 447 N-(2-Chloro-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1039 454 N-(2-Chloro-4-{3-[1-(4-cyano-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1040 437 N-(2-Cyano-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1041 498 N-(4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-cyano-phenyl)-2-fluoro-benzamide
- 1042 445 N-(2-Cyano-4-{3-[1-(4-cyano-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1043 460 N-{4-[3-(1-Benzofuran-2-yl-ethyl)-thioureido]-2-cyano-phenyl}-2-fluoro-benzamide
- 1044 517 N-(2-Benzoyl-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1045 427 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-methyl-phenyl)-benzamide
- 1046 487 N-(4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-methyl-phenyl)-2-fluoro-benzamide
- 1047 434 N-(4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido}-2-methyl-phenyl)-2-fluoro-benzamide
- 1048 449 N-{4-[3-(1-Benzofuran-2-yl-ethyl)-thioureido]-2-methyl-phenyl}-2-fluoro-benzamide
- 1049 456 N-(2-Dimethylamino-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1050 526 N-(2-Benzyloxy-4-{3-[1-(4-cyano-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1051 519 N-(2-Benzyloxy-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1052 603 N-[4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-(2-morpholin-4-yl-ethoxy)-phenyl]-2-fluoro-benzamide
- 1053 603 N-[4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-(2-morpholin-4-yl-ethoxy)-phenyl]-2-fluoro-benzamide
- 1054 542 2-Fluoro-N-[4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-(2-morpholin-4-yl-ethoxy)-phenyl]-benzamide
- 1055 485 N-(2-Butoxy-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1056 492 N-(2-Butoxy-4-{3-[1-(4-cyano-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide

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- 1057 589 N-[4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-(2-diethylamino-ethoxy)-phenyl]-2-fluoro-benzamide
- 1058 528 N-(2-(2-Diethylamino-ethoxy)-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1059 589 N-[4-{3-[1-(4-Bromo-phenyl)-ethyl]-thioureido}-2-(2-diethylamino-ethoxy)-phenyl]-2-fluoro-benzamide
- 1060 457 N-(2-Ethoxy-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-2-fluoro-benzamide
- 1061 464 N-(4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido}-2-ethoxy-phenyl)-2-fluoro-benzamide
- 1062 468 2-Fluoro-N-[4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-(2-nitrolo-ethoxy)-phenyl]-benzamide
- 1063 475 N-[4-{3-[1-(4-Cyano-phenyl)-ethyl]-thioureido}-2-(2-nitrolo-ethoxy)-phenyl]-2-fluoro-benzamide
- 1064 443 2-Fluoro-N-(4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-methoxy-phenyl)-benzamide
- 1065 489 2-Fluoro-N-(5-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-biphenyl-2-yl)-benzamide
- 1066 514 Isoquinoline-1-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-trifluoromethyl-phenyl)-amide
- 1067 503 Benzofuran-2-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-trifluoromethyl-phenyl)-amide
- 1068 514 Isoquinoline-3-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-trifluoromethyl-phenyl)-amide
- 1069 471 Isoquinoline-1-carboxylic acid (2-cyano-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 1070 460 Benzofuran-2-carboxylic acid (2-cyano-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 1071 471 Isoquinoline-3-carboxylic acid (2-cyano-4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 1072 460 Isoquinoline-1-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-methyl-phenyl)-amide
- 1073 449 Benzofuran-2-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-methyl-phenyl)-amide
- 1074 460 Isoquinoline-3-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-2-methyl-phenyl)-amide
- 1075 396 Pyrazine-2-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-amide
- 1076 401 Thiophene-2-carboxylic acid (4-{3-[1-(4-fluoro-phenyl)-ethyl]-thioureido}-phenyl)-

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- amide
- 1077 401 Thiophene-3-carboxylic acid {4-[3-[1-(4-fluoro-phenyl)-ethyl]-thioureido]-phenyl}-amide
- 1078 500 2-Isopropyl-thiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1079 466 2-Isopropyl-thiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1080 466 2-Isopropyl-thiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1081 534 2-Isopropyl-thiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1082 480 2-Butyl-thiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1083 514 2-Butyl-thiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1084 480 2-Butyl-thiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1085 548 2-Butyl-thiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1086 438 2-Methyl-thiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1087 438 2-Methyl-thiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1088 505 2-Methyl-thiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1089 534 2-Phenyl-thiazole-4-carboxylic acid {4-[3-(4-chloro-3-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1090 500 2-Phenyl-thiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1091 500 2-Phenyl-thiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
- 1092 568 2-Phenyl-thiazole-4-carboxylic acid {4-[3-(3,5-bis-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
- 1093 401 2-Fluoro-N-{4-[3-(1-thiazol-2-yl-ethyl)-thioureido]-phenyl}-benzamide
- 1094 588 2-Fluoro-N-[4-(3-{1-[1-(toluene-4-sulfonyl)-1H-indol-2-yl]-ethyl}-thioureido)-phenyl]-benzamide
- 1095 446 2-Fluoro-N-{4-[3-(1-quinolin-2-yl-ethyl)-thioureido]-phenyl}-benzamide
- 1096 446 2-Fluoro-N-{4-[3-(1-quinolin-4-yl-ethyl)-thioureido]-phenyl}-benzamide

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- 1097 446 2-Fluoro-N-{4-[3-(1-isoquinolin-3-yl-ethyl)-thioureido]-phenyl}-benzamide  
 1098 446 2-Fluoro-N-{4-[3-(1-isoquinolin-1-yl-ethyl)-thioureido]-phenyl}-benzamide  
 1099 446 2-Fluoro-N-{4-[3-(1-quinolin-6-yl-ethyl)-thioureido]-phenyl}-benzamide  
 1100 446 2-Fluoro-N-{4-[3-(1-quinolin-3-yl-ethyl)-thioureido]-phenyl}-benzamide  
 1101 413 2-Methoxy-N-{4-[3-(1-thiophen-3-yl-ethyl)-thioureido]-phenyl}-benzamide

## EXAMPLE 871 (METHOD 33)

[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide

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To a solution of 3,5-dichloroaniline (0.16 g) in tetrahydrofuran (20 mL) is added freshly prepared 1,1'-thiocarbonyl-di-(1,2,4)-triazole (0.20 g) and the mixture is stirred for approximately 30 minutes at room temperature. [1,2,3]-Thiadiazole-4-carboxylic acid (4-amino-phenyl) amide (0.22 g) is added to the reaction flask and the mixture is stirred for approximately 6 hours. The solvent is then removed by evaporation under reduced pressure and warm acetonitrile (3 mL) is added. After 15 hours the mixture is filtered and the collected precipitate is washed with acetonitrile then diethyl ether, and air dried to provide the desired product as a white powder.  
 [M+H] 424.

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Using the above procedure and appropriate starting materials the following compounds were prepared:

<u>EX. NO.</u>	<u>M+H</u>	<u>COMPOUND NAME</u>
872	465	N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-3-fluoro-benzamide
873	477	N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-2-methoxy-benzamide
874	465	N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
875	477	N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-3-methoxy-benzamide
876	399	N-{4-[3-(3,5-Dichloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-

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		acetamide
877	365	N-{4-[3-(3-Chloro-4-methoxy-5-methyl-phenyl)-thioureido]-phenyl}-acetamide
878	331	N-{4-[3-(2-Nitro-phenyl)-thioureido]-phenyl}-acetamide
879	331	N-{4-[3-(4-Nitro-phenyl)-thioureido]-phenyl}-acetamide
880	477	N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-4-methoxy-benzamide
881	351	N-{4-[3-(2-Chloro-5-methoxy-phenyl)-thioureido]-phenyl}-acetamide
882	428	2-{4-[3-(4-Acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetamide
883	443	{4-[3-(4-Acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetic acid methyl ester
884	457	{4-[3-(4-Acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetic acid ethyl ester
885	447	N-{4-[3-(3,5-Dichloro-4-phenoxy-phenyl)-thioureido]-phenyl}-acetamide
886	410	N-(4-{3-[3,5-Dichloro-4-(2-nitrido-ethoxy)-phenyl]-thioureido}-phenyl)-acetamide
887	485	{4-[3-(4-Acetylamino-phenyl)-thioureido]-2,6-dichloro-phenoxy}-acetic acid tert-butyl ester
888	469	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,5-dichloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-amide
889	335	N-{4-[3-(3-Chloro-4-methyl-phenyl)-thioureido]-phenyl}-acetamide
890	335	N-{4-[3-(5-Chloro-2-methyl-phenyl)-thioureido]-phenyl}-acetamide
891	703	N-{4-[3-(4-{4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chlorophenyl}disulfanyl)-3-chloro-phenyl)-thioureido]-phenyl}-acetamide
892	369	N-{4-[3-(3,5-Dichloro-4-methyl-phenyl)-thioureido]-phenyl}-acetamide
893	598	N-{4-[3-(3,5-Diiodo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
894	504	N-{4-[3-(3,5-Dibromo-2,4-dimethoxy-phenyl)-thioureido]-phenyl}-acetamide
895	317	N-{4-[3-(6-Methoxy-pyridin-3-yl)-thioureido]-phenyl}-acetamide
896	347	N-{4-[3-(2,6-Dimethoxy-pyridin-3-yl)-thioureido]-phenyl}-acetamide
897	457	Acetic acid 2-{4-[3-(4-acetylamino-phenyl)-thioureido]-2,6-dichlorophenoxy}-ethyl ester
898	365	4-[3-(4-Acetylamino-phenyl)-thioureido]-2-chloro-benzoic acid
899	346	N-{4-[3-(3-Chloro-4-cyano-phenyl)-thioureido]-phenyl}-acetamide
900	512	N-(4-{3-[5-Chloro-2-(4-chloro-phenoxy)-4-pyrrol-1-yl-phenyl]-thioureido}-

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		phenyl)-acetamide
901	355	N-[4-[3-(3,4-Dichloro-phenyl)-thioureido]-phenyl]-acetamide
902	339	N-[4-[3-(3-Chloro-4-fluoro-phenyl)-thioureido]-phenyl]-acetamide
903	447	N-[4-[3-(3-Chloro-4-iodo-phenyl)-thioureido]-phenyl]-acetamide
904	400	N-[4-[3-(4-Bromo-3-chloro-phenyl)-thioureido]-phenyl]-acetamide
905	424	N-[4-(3-{4-[Bis-(2-hydroxy-ethyl)-amino]-3-chloro-phenyl}-thioureido)-phenyl]-acetamide
906	434	N-(4-{3-[3-Chloro-4-(hexyl-methyl-amino)-phenyl]-thioureido}-phenyl)-acetamide
907	406	N-(4-{3-[3-Chloro-4-(isobutyl-methyl-amino)-phenyl]-thioureido}-phenyl)-acetamide
908	389	N-[4-[3-(3-Chloro-4-trifluoromethyl-phenyl)-thioureido]-phenyl]-acetamide
909	441	Furan-2-carboxylic acid {4-[3-(3-chloro-4-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
910	459	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-trifluoromethyl-phenyl)-thioureido]-phenyl}-amide
911	469	N-[4-[3-(3-Chloro-4-trifluoromethyl-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
912	435	N-[4-[3-(3,4-Dichloro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
913	407	Furan-2-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
914	425	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3,4-dichloro-phenyl)-thioureido]-phenyl}-amide
915	480	N-[4-[3-(4-Bromo-3-chloro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
916	527	N-[4-[3-(3-Chloro-4-iodo-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide
917	452	Furan-2-carboxylic acid {4-[3-(4-bromo-3-chloro-phenyl)-thioureido]-phenyl}-amide
918	499	Furan-2-carboxylic acid {4-[3-(3-chloro-4-iodo-phenyl)-thioureido]-phenyl}-amide
919	391	Furan-2-carboxylic acid {4-[3-(3-chloro-4-fluoro-phenyl)-thioureido]-phenyl}-amide
920	470	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-bromo-3-chloro-phenyl)-thioureido]-phenyl}-amide
921	517	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-iodo-phenyl)-thioureido]-phenyl}-amide
922	419	N-[4-[3-(3-Chloro-4-fluoro-phenyl)-thioureido]-phenyl]-2-fluoro-benzamide

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- 923 409 [1,2,3]Thiadiazole-4-carboxylic acid{4-[3-(3-chloro-4-fluoro-phenyl)-thioureido]-phenyl}-amide
- 924 388 N-{4-[3-(3-Chloro-4-isoxazol-5-yl-phenyl)-thioureido]-phenyl}-acetamide
- 925 387 N-(4-(3-[3-Chloro-4-(1H-pyrazol-3-yl)-phenyl]-thioureido)-phenyl)-acetamide
- 926 355 N-{4-[3-(2,3-Dichloro-phenyl)-thioureido]-phenyl}-acetamide
- 927 435 N-{4-[3-(2,3-Dichloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 928 407 Furan-2-carboxylic acid {4-[3-(2,3-dichloro-phenyl)-thioureido]-phenyl}-amide
- 929 425 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2,3-dichloro-phenyl)-thioureido]-phenyl}-amide
- 930 355 N-{4-[3-(2,5-Dichloro-phenyl)-thioureido]-phenyl}-acetamide
- 931 435 N-{4-[3-(2,5-Dichloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 932 407 Furan-2-carboxylic acid {4-[3-(2,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 933 355 N-{4-[3-(3,5-Dichloro-phenyl)-thioureido]-phenyl}-acetamide
- 934 435 N-{4-[3-(3,5-Dichloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 935 407 Furan-2-carboxylic acid {4-[3-(3,5-dichloro-phenyl)-thioureido]-phenyl}-amide
- 936 390 N-{4-[3-(3,4,5-Trichloro-phenyl)-thioureido]-phenyl}-acetamide
- 937 470 2-Fluoro-N-{4-[3-(3,4,5-trichloro-phenyl)-thioureido]-phenyl}-benzamide
- 938 442 Furan-2-carboxylic acid {4-[3-(3,4,5-trichloro-phenyl)-thioureido]-phenyl}-amide
- 939 460 [1,2,3]Thiadiazole-4-carboxylic acid{4-[3-(3,4,5-trichloro-phenyl)-thioureido]-phenyl}-amide
- 940 458 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-4-isoxazol-5-yl-phenyl)-thioureido]-phenyl}-amide
- 941 457 [1,2,3]Thiadiazole-4-carboxylic acid{4-[3-[3-chloro-4-(1H-pyrazol-3-yl)-phenyl]-thioureido]-phenyl}-amide
- 942 391 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-chloro-phenyl)-thioureido]-phenyl}-amide
- 943 373 Furan-2-carboxylic acid {4-[3-(3-chloro-phenyl)-thioureido]-phenyl}-amide
- 944 401 N-{4-[3-(3-Chloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 945 373 Furan-2-carboxylic acid {4-[3-(4-chloro-phenyl)-thioureido]-phenyl}-amide
- 946 401 N-{4-[3-(4-Chloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
- 947 391 [1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(4-chloro-phenyl)-thioureido]-phenyl}-amide

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		phenyl}-amide
948	401	N-{4-[3-(2-Chloro-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
949	396	3-(3-{4-[(Furan-2-carbonyl)-amino]-phenyl}-thioureido)-benzoic acid methyl ester
950	424	3-{3-[4-(2-Fluoro-benzoylamino)-phenyl]-thioureido}-benzoic acid methyl ester
951	414	3-(3-{4-[(1,2,3]Thiadiazole-4-carbonyl)-amino]-phenyl}-thioureido)-benzoic acid methyl ester
952	409	N-[4-[[[3-(Aminocarbonyl)phenyl]amino]thioxomethyl]amino]phenyl]-2-fluoro-benzamide
953	373	Furan-2-carboxylic acid {4-[3-(2-chloro-phenyl)-thioureido]-phenyl}-amide
954	381	Furan-2-carboxylic acid {4-[3-(3-carbamoyl-phenyl)-thioureido]-phenyl}-amide
955	399	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(3-carbamoyl-phenyl)-thioureido]-phenyl}-amide
956	391	[1,2,3]Thiadiazole-4-carboxylic acid {4-[3-(2-chloro-phenyl)-thioureido]-phenyl}-amide
957	356	Furan-2-carboxylic acid {4-[3-(3-fluoro-phenyl)-thioureido]-phenyl}-amide
958	383	Furan-2-carboxylic acid {4-[3-(3-nitro-phenyl)-thioureido]-phenyl}-amide
959	411	2-Fluoro-N-{4-[3-(3-nitro-phenyl)-thioureido]-phenyl}-benzamide
960	422	Furan-2-carboxylic acid {4-[3-(3-trifluoromethoxy-phenyl)-thioureido]-phenyl}-amide
961	450	2-Fluoro-N-{4-[3-(3-trifluoromethoxy-phenyl)-thioureido]-phenyl}-benzamide
962	384	2-Fluoro-N-{4-[3-(3-fluoro-phenyl)-thioureido]-phenyl}-benzamide
963	410	3-{3-[4-(2-Fluoro-benzoylamino)-phenyl]-thioureido}-benzoic acid
964	382	3-(3-{4-[(Furan-2-carbonyl)-amino]-phenyl}-thioureido)-benzoic acid
965	408	N-{4-[3-(3-Acetyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
966	502	N-{4-[3-(3-Butylsulfamoyl-phenyl)-thioureido]-phenyl}-2-fluoro-benzamide
967	380	Furan-2-carboxylic acid {4-[3-(3-acetyl-phenyl)-thioureido]-phenyl}-amide
968	447	Furan-2-carboxylic acid (4-{3-[3-(2-hydroxy-ethanesulfonyl)-phenyl]-thioureido}-phenyl)-amide
969	475	2-Fluoro-N-{4-[3-[3-(2-hydroxy-ethanesulfonyl)-phenyl]-thioureido]-phenyl}-benzamide
970	474	Furan-2-carboxylic acid {4-[3-(3-butylsulfamoyl-phenyl)-thioureido]-phenyl}-amide

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**EXAMPLE 971 (METHOD 57)****1-(4-Fluoro-phenyl)-2-methyl-propan-1-ol**

- 5 To solution of 4-fluorobenzaldehyde (2.0 g) in diethyl ether (40 mL) at 0 °C is added dropwise isopropylmagnesium bromide (2.0 M, 9.6 mL) with stirring. After 1.5 hours the reaction is quenched with aqueous ammonium chloride and extracted with diethyl ether. The diethyl ether extracts are washed with saturated sodium chloride, dried over anhydrous magnesium sulfate, filtered and evaporated to give an oil. The  
10 oil is purified by silica gel chromatography eluting with 10% dichloromethane-hexanes to give the product, a yellow oil (1.76 g).

**EXAMPLE 972 (METHOD 58)****1-(4-Fluoro-phenyl)-2-methyl-propan-1-one**

15

- To a solution of 1-(4-Fluoro-phenyl)-2-methyl-propan-1-ol (1.6 g) in acetone (10 mL) at 0 °C is added Jones reagent (20 mL) with stirring. After 10 minutes excess Jones reagent is destroyed by addition of isopropyl alcohol. Diethyl ether is added followed by anhydrous magnesium and the mixture is filtered and evaporated to give  
20 the product, a yellow oil (1.2 g).

**EXAMPLE 973 (METHOD 59)****3-Dimethylamino-5-trifluoromethyl-benzonitrile**

- 25 To a solution of 3-dimethylamino-5-trifluoromethylbromobenzene (7.3 g) in N,N-dimethylformamide (20 mL) is added cuprous cyanide (2.7 g) and the reaction heated at reflux for 12 hours. The reaction is diluted with water (40 mL) and dichloromethane is added. The dichloromethane fraction is washed with concentrated ammonium hydroxide, then water. The solution is dried over anhydrous magnesium sulfate, filtered and concentrated to give a yellow solid which is recrystallized from hexanes to give a yellow solid, (4.7 g).  
30

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The foregoing compounds were tested for activity as herpes virus inhibitors using the following assays.

### HUMAN CYTOMEGALOVIRUS

5

**Yield assay.** Monolayer cultures of human foreskin fibroblasts are infected with HCMV wild-type, typically at a multiplicity of infection equal to 0.2, in the presence of inhibitor compound (varying concentrations). At three days post-infection, total virus produced in these cultures (i.e. virus yield) is assessed by harvesting and titering 10 the virus in 12-well plates of cultured human foreskin fibroblasts (done in the absence of inhibitor). Plaques are quantified at 2 weeks post-infection. An inhibitor of HCMV is identified by the reduction in titer of virus yield in the presence, compared to the titer in the absence of compound. In this assay, the relative anti-HCMV activity of an inhibitor is typically determined by calculating the IC<sub>50</sub> or 15 IC<sub>90</sub> value, that is, the amount of compound required to reduce the virus yield by 50% or 90%, respectively. Table I describes IC<sub>50</sub> data for compounds tested against HCMV.

20

**Microtiter plate assay.** Ninety-six well plate cultures of human foreskin fibroblasts are infected in the presence of inhibitor compound with a HCMV recombinant mutant virus whose genome contains the prokaryotic beta-glucuronidase gene (Jefferson, R. A., S. M. Burgess, and D. Hirsh. 1986. Beta-glucuronidase from *Escherichia coli* as a gene fusion marker. Proc. Natl. Acad. Sci. USA 83:8447-8451) whose expression is controlled by a viral promoter. An example of such a virus is 25 RV145 (Jones, T. R., V. P. Muzithras, and Y. Gluzman. 1991. Replacement mutagenesis of the human cytomegalovirus genome: US10 and US11 gene products are nonessential. J. Virol. 65:5860-5872). Since it is under the control of a viral promoter, beta-glucuronidase expression is an indirect indicator of growth and replication of HCMV in this assay. At 96 hours post-infection, the infected cell 30 lysates are prepared (using 50mM sodium phosphate [pH7.0] containing 0.1% Triton X-100 and 0.1% sarkosyl) and assayed for beta-glucuronidase activity using a substrate for the enzyme which when cleaved yields either a product which can be measured colorimetrically in a spectrophotometer or fluorescently in a

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microfluorimeter. Examples of such substrates are p-nitrophenyl-beta-D-glucuronide and methylumbelliferylglucuronide, respectively. The presence of an antiviral compound is indicated by the reduced expression of the HCMV genome resident beta-glucuronidase gene, compared to the absence of inhibitor. Thus, the generation 5 of the chromophore or fluorophore product in this assay is correspondingly reduced. Data from this assay generated using varying amounts of inhibitor compound is also used to estimate the IC<sub>50</sub> of an inhibitor compound.

#### HSV antiviral (ELISA) assay

10

Vero cells (ATCC #CCL-81) are plated on 96-well tissue culture plates at 3.5x10<sup>4</sup> cells per 100µl tissue culture DMEM (Dulbecco's modified Eagle media) supplemented with 2% fetal bovine serum (FBS) in each well. After overnight incubation @ 37°C (in 5% CO<sub>2</sub>) and 30 minutes prior to infection with HSV-1 15 (multiplicity of infection equal to 0.006), cells are either untreated, or treated with test compound (multiple concentrations) or reference standard drug control. After approximately 24 hours post-infection incubation @ 37°C (in 5% CO<sub>2</sub>), cells are fixed for ELISA assay. The primary antibody is murine anti-HSV glycoprotein D monoclonal primary antibody and the secondary antibody is goat anti-mouse IgG 20 linked to β-galactosidase. Thus the extent of viral replication is determined by assessing β-galactosidase activity by quantifying the generation of the 4-methyl umbelliferone fluorescent cleavage product after addition of the methyl umbelliferyl-β-D-galactoside (Sigma #M1633) substrate on a microfluorimeter (365nm for excitation and 450nm for emission). Antiviral activity (IC<sub>50</sub>) of the test compound is 25 determined by comparing the fluorescence obtained in absence of compound to that obtained in the presence of compound. Data is shown in Table I.

#### VZV antiviral (ELISA) assay

30 For the generation of stock VZV to be used in the assay, VZV strain Ellen (ATCC #VR-1367) is used to infect human foreskin fibroblast (HFF) cells at low multiplicity (less than 0.1) and incubated overnight at 37°C in 5% CO<sub>2</sub>. After the overnight

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incubation, the mixture of uninfected and VZV-infected HFF infected cells are then harvested and added to each well of 96-well plates ( $3.5 \times 10^4$  cells in 100  $\mu$ l DMEM supplemented with 2% FBS) which contain test compound or the reference standard drug control (in 100 $\mu$ l DMEM supplemented with 2% FBS per well). These cells are 5 incubated for three days at 37°C in 5% CO<sub>2</sub>, then fixed for ELISA assay. The primary antibody is murine anti-VZV glycoprotein II monoclonal antibody (Applied Biosystems, Inc. #13-145-100) and the secondary antibody is goat anti-mouse IgG linked to  $\beta$ -galactosidase. Thus the extent of viral replication is determined by assessing  $\beta$ -galactosidase activity by quantifying the generation of the 4-methyl 10 umbelliferone fluorescent cleavage product after addition of the methyl umbelliferyl- $\beta$ -D-galactoside (Sigma #M1633) substrate on a microfluorimeter (365nm for excitation and 450nm for emission). Antiviral activity (IC<sub>50</sub>) of the test compound is determined by comparing the fluorescence obtained in absence of compound to that obtained in the presence of compound. Data is shown in Table I.

15

Table I describes IC<sub>50</sub> data for compounds tested against herpes viruses.

Example	IC50	IC50	% inhibition	IC50
	Ug/ml	Ug/ml	10 ug/ml	Ug/ml
	HCMV	HSV	VZV	VZV
99	>50	50	2	>10
100	>50	40	19	>10
103	>50	25	28	>10
104	>50	>50	8	>10
105	>50	>50	32	>10
106	7	3	20	>10
107	>50	>50	20	>10
108	>50	50	28	>10
109	0.4	>10	27	>10
110	30	12	25	>10
111	12	15	51	>10
112	3	5	55	>10
113	45	50	39	>10
124	50	50	0	>10
126	20	30	23	>10
128	15	15	35	>10
129	>50	>50	29	>10
130	30	>50	30	>10
131	<50	15	53	>10
132	>50	>50	11	>10

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Example	IC50 Ug/ml HCMV	IC50 Ug/ml HSV	% inhibition 10 ug/ml VZV	IC50 Ug/ml VZV
150	40	9	3	>10
151	40	>50	0	>10
152	0.8	2	70	7.5
176	0.5	>50	24	>10
177	3.5	>50	19	>10
178	>10	>50	32	>10
179	>50	5	35	>10
197	>10	6	59	>15
198	>50	9	36	>10
199	>10	1.2	60	>15
202	>10	3	18	>10
203	2	>10	22	>10
205	20	>50	30	>10
211	>10	30	35	>10
212	20	>50	23	>10
213	15	30	20	>10
214	>10	20	20	>10
215	>10	>50	30	>10
216	>10	35	23	>10
217	>10	>50	10	>10
218	>10	15	18	>10
223	>50	14	24	>10
226	>50	>50	35	>10
227	>50	>50	32	>10
228	>10	3	35	>10
229	7	15	35	>10
239	>10	25	33	>10
240	1.5	>50	5	>10
241	2	10	24	>10
242	>10	50	20	>10
243	40	>50	4	>10
245	>10	>10	73	3.5
251	7	>50	22	>10
252	10	10	0	>10
259	>50	>50	28	>10
261	>10	>10	1	>10
262	>50	>50	15	>10
263	>50	>50	20	>10
265	>50	>50	20	>10
266	>10	12	10	>10
267	>10	>10	25	>10
268	10	>10	14	>10
269	5	>10	38	>10
271	>10	7	105	3.5
272	>10	>50	50	>10

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Example	IC50	IC50	% inhibition	IC50
	Ug/ml HCMV	Ug/ml HSV	10 ug/ml VZV	Ug/ml VZV
273	>10	>50	46	>10
274	>50	5	15	>10
275	>10	10	32	>10
282	>10	>10	50	>10
285	>50	>50	18	>10
290	5	>50	1	>10
291	6	>50	18	>10
292	>10	>50	70	13
297	>10	1	23	>10
298	15	>50	1	>10
299	6	>10	72	3.8
300	1.5	>50	23	>10
305	>10	>10	32	>10
309	25	8	22	>10
312	50	50	22	>10
313	>10	>10	36	>10
314	30	2	34	>10
315	1.5	8	40	>10
316	>50	30	56	>10
317	2	35	30	>10
318	>50	>50	26	>10
319	5	6	82	7
321	18	7	28	>10
326	>10	10	19	>10
329	>10	4	38	>10
334	18	35	7	>10
335	30	30	8	>10
336	50	40	17	>10
337	>50	>50	31	>10
343	40	>50	38	>10
345	>10	>10	30	>10
358	>10	2	31	>10
360	>10	>10	16	>10
363	7	>10	58	>10
366	>10	>10	16	>10
369	>10	>10	0	>10
372	>10	>10	53	>10
377	0.8	3	28	>10
383	>10	>10	38	>10
388	>10	0.6	52	>10
405	>10	>10	83	13
410	>10	>10	26	>10
412	>10	>10	29	>10
415	>10	>10	26	4.5
744	>0.5	>10		
751	>0.5	>10		

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Example	IC50 Ug/ml HCMV	IC50 Ug/ml HSV	% inhibition 10 ug/ml VZV	IC50 Ug/ml VZV
813				3.5
814	>10	>10	15	>10
816	25	20	30	>10
826	>10	3	30	>10
831	>10	3	11	>10
832	>50	9	15	>10
833	>10	7	54	>10
834	>10	10	93	15
835	>10	8	38	>10
836	>10	8	92	2.5
838	>10	>50	20	>10
839	15	10	17	>10
840	0.4	1.5	0	>10
841	0.9	>50	30	>10
842	1.5	>10	33	>10
843	0.7	5	50	>10
844	0.8	15	32	>10
845	1	20	25	>10
862	2	>10	10	>10
864	>10	>10	21	>10
876	1	10	58	>10
877	2	30	15	>10
878	40	50	23	>10
879	>10	>50	16	>10
881	>50	40	12	>10
882	>50	>50	15	>10
883	>10	50	17	>10
884	>10	>50	21	>10
885	>10	15	45	>10
886	10	25	50	>15
887	>10	45	38	>10
889	1.2	2	1	>10
890	35	20	20	>10
892	1	10	25	>10
893	7	20	76	2.5
894	7	12	56	>10
896	>50	12	17	>10
897	>10	40	33	>10
898	>50	>50	0	>10
899	>10	10	7	>10
900	2	>10	124	2.5
901	2.5	1.5	1	>10
902	12	4	1	>10
903	0.3	10	26	>10
904	1	4	26	>10
905	>50	>50	36	>10

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Example	IC50	IC50	% inhibition	IC50
	Ug/ml HCMV	Ug/ml HSV	10 ug/ml VZV	Ug/ml VZV
906	1.5	>10	32	>10
907	.3	>10	19	>10
908	0.6	>10	36	>10
924	0.9	>10	4	>10
925	3.5	>10	32	>10
926	10	>10	16	>10
930	>10	10	42	>10
933	1.2	>10	21	>10
936	1	1.5	51	>10

Thus, in accordance with the present invention, compounds of the present invention may be administered to a patient suffering from VZV, in an amount effective to inhibit the virus. Compounds of the present invention are thus useful to ameliorate to eliminate the symptoms of VZV infections in mammals including, but not limited to humans.

Compounds of the invention may be administered to a patient either neat or with a conventional pharmaceutical carrier.

Applicable solid carriers can include one or more substances which may also act as flavoring agents, lubricants, solubilizers, suspending agents, fillers, glidants, compression aids, binders or tablet-disintegrating agents or an encapsulating material. In powders, the carrier is a finely divided solid which is in admixture with the finely divided active ingredient. In tablets, the active ingredient is mixed with a carrier having the necessary compression properties in suitable proportions and compacted in the shape and size desired. The powders and tablets preferably contain up to 99% of the active ingredient. Suitable solid carriers include, for example, calcium phosphate, magnesium stearate, talc, sugars, lactose, dextrin, starch, gelatin, cellulose, methyl cellulose, sodium carboxymethyl cellulose, polyvinylpyrrolidine, low melting waxes and ion exchange resins.

Liquid carriers may be used in preparing solutions, suspensions, emulsions, syrups and elixirs. The active ingredient of this invention can be dissolved or suspended in a pharmaceutically acceptable liquid carrier such as water, an organic solvent, a mixture of both or pharmaceutically acceptable oils or fat. The liquid carrier can contain other suitable pharmaceutical additives such as solubilizers, emulsifiers, buffers, preservatives, sweeteners, flavoring agents, suspending agents, thickening

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agents, colors, viscosity regulators, stabilizers or osmo-regulators. Suitable examples of liquid carriers for oral and parenteral administration include water (particularly containing additives as above e.g. cellulose derivatives, preferably sodium carboxymethyl cellulose solution), alcohols (including monohydric alcohols and polyhydric alcohols e.g. glycols) and their derivatives, and oils (e.g. fractionated coconut oil and arachis oil). For parenteral administration the carrier can also be an oily ester such as ethyl oleate and isopropyl myristate. Sterile liquid carriers are used in sterile liquid form compositions for parenteral administration.

Liquid pharmaceutical compositions which are sterile solutions or suspensions can be utilized by, for example, intramuscular, intraperitoneal or subcutaneous injection. Sterile solutions can also be administered intravenously. Oral administration may be either liquid or solid composition form.

Preferably the pharmaceutical composition is in unit dosage form, e.g. as tablets or capsules. In such form, the composition is sub-divided in unit dose containing appropriate quantities of the active ingredient; the unit dosage forms can be packaged compositions, for example packeted powders, vials, ampoules, prefilled syringes or sachets containing liquids. The unit dosage form can be, for example, a capsule or tablet itself, or it can be the appropriate number of any such compositions in package form.

The therapeutically effective dosage to be used in the treatment of CMV infection must be subjectively determined by the attending physician. The variables involved include the condition, age and weight of the patient. The novel method of the invention for treating CMV infection comprises administering to a subject, including humans, an effective amount of at least one compound of Formula 1 or a non-toxic, pharmaceutically acceptable salt thereof. The compounds may be administered orally, rectally, parenterally or topically to the skin and mucosa. The usual daily dose is depending on the specific compound, method of treatment and condition of the patient. The usual daily dose is 0.01 - 1000 mg/Kg for oral application, preferably 0.5 - 500 mg/Kg, and 0.1 - 100 mg/Kg for parenteral application, preferably 0.5 - 50 mg/Kg.

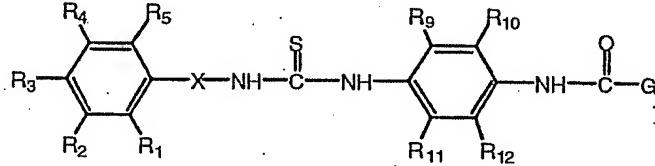
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CLAIMSWhat is claimed:

- 5 1. A compound of the formula:



wherein

- R<sub>1</sub>-R<sub>5</sub> are independently selected from hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkynyl of 2 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 carbon members, aryl, heteroaryl, halogen, -CN, -NO<sub>2</sub>, -CO<sub>2</sub>R<sub>6</sub>, -COR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -NR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z provided that at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen; or R<sub>2</sub> and R<sub>3</sub> or R<sub>3</sub> and R<sub>4</sub>, taken together form a 3 to 7 membered heterocycloalkyl or 3 to 7 membered heteroaryl;
- 10 R<sub>6</sub> and R<sub>7</sub> are independently hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, or aryl;
- 15 R<sub>8</sub> is hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 members, aryl or heteroaryl, or
- 20 R<sub>7</sub> and R<sub>8</sub>, taken together may form a 3 to 7 membered heterocycloalkyl;
- 25 R<sub>9</sub>-R<sub>12</sub> are independently hydrogen, alkyl of 1 to 4 carbon atoms, perhaloalkyl of 1 to 4 carbon atoms, halogen, alkoxy of 1 to 4 carbon atoms, or cyano, or R<sub>9</sub> and R<sub>10</sub> or R<sub>11</sub> and R<sub>12</sub> may be taken together to form aryl of 5 to 7 carbon atoms;
- W is O, NR<sub>6</sub>, or is absent;
- Y is -(CO)- or -(CO<sub>2</sub>)-, or is absent;
- Z is alkyl of 1 to 4 carbon atoms, -CN, -CO<sub>2</sub>R<sub>6</sub>, COR<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -OCOR<sub>6</sub>, -NR<sub>6</sub>COR<sub>7</sub>, -OCONR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, SR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or phenyl;

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G is alkyl of 1 to 6 carbon atoms;

X is a bond, -NH, alkyl of 1 to 6 carbon atoms, alkenyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, thioalkyl of 1 to 6 carbon atoms, alkylamino of 1 to 6 carbon atoms, or (CH)J;

5 J is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, phenyl or benzyl;

and n is an integer from 1 to 6;

or a pharmaceutical salt thereof.

10 2. A compound of Claim 1 wherein at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen.

3. A compound of Claim 1 wherein at least one of R<sub>1</sub>-R<sub>5</sub> is chlorine.

4. A compound of Claim 1 wherein R<sub>2</sub> or R<sub>4</sub> is chlorine.

15 5. A compound of Claim 1 wherein R<sub>2</sub> and R<sub>4</sub> are chlorine.

6. A compound of Claim 1 wherein R<sub>9</sub>-R<sub>12</sub> are independently, hydrogen, halogen, methyl, methoxy or cyano.

20 7. A compound of Claim 1 wherein G is methyl.

8. A compound of Claim 1 where R<sub>9</sub>-R<sub>12</sub> are each hydrogen.

25 9. A compound of Claim 1 selected from

N-{4-[3-(3,5-Dichloro-4-methoxy-phenyl)-thioureido]-phenyl}-acetamide;

N-{4-[3-(3,5-Dichloro-4-ethoxy-phenyl)-thioureido]-phenyl}-acetamide;

N-{4-[3-(3,5-Dichloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-acetamide;

N-{4-[3-(5-Chloro-2-methoxy-4-methyl-phenyl)-thioureido]-phenyl}-acetamide;

30 N-(4-{3-[3-Chloro-4-(cyclohexyl-methyl-amino)-phenyl]-thioureido}-phenyl)-acetamide;

N-(4-{3-[4-(1-Benzyl-pyrrolidin-3-ylamino)-3-chloro-phenyl]-thioureido}-phenyl)-acetamide;

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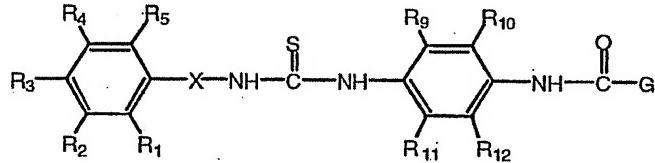
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- N-{4-[3-(3-Chloro-4-vinyl-phenyl)-thioureido]-phenyl}-acetamide;  
 N-{4-[3-(3-Chloro-4-methylsulfanyl-phenyl)-thioureido]-phenyl}-acetamide;  
 N-[4-(4-[4-[(1-Benzyl-pyrrolidin-3-yl)-methyl-amino]-3-chloro-phenyl]-thioureido)-phenyl]-acetamide;  
 5 N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-thioureido)-phenyl]-acetamide;  
 N-[4-(3-{3-Chloro-4-[methyl-(1-methyl-piperidin-4-yl)-amino]-phenyl}-thioureido)-phenyl]-acetamide;  
 N-{4-[3-(3-Chloro-4-iodo-phenyl)-thioureido]-phenyl}-acetamide;  
 10 N-{4-[3-(3-Chloro-4-trifluoromethyl-phenyl)-thioureido]-phenyl}-acetamide; and  
 N-{4-[3-(3-Chloro-4-isoxazol-5-yl-phenyl)-thioureido]-phenyl}-acetamide,  
 and pharmaceutical salts thereof.

10. A pharmaceutical composition comprising a compound of the formula:

15



wherein

R<sub>1</sub>-R<sub>5</sub> are independently selected from hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkynyl of 2 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 carbon members, aryl, heteroaryl, halogen, -CN, -NO<sub>2</sub>, -CO<sub>2</sub>R<sub>6</sub>, -COR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -NR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z provided that at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen; or R<sub>2</sub> and R<sub>3</sub> or R<sub>3</sub> and R<sub>4</sub>, taken together form a 3 to 7 membered heterocycloalkyl or 3 to 7 membered heteroaryl;

25

R<sub>6</sub> and R<sub>7</sub> are independently hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, or aryl;

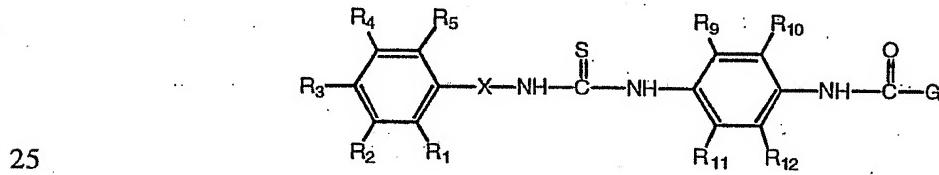
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- R<sub>8</sub> is hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 members, aryl or heteroaryl, or
- 5 R<sub>7</sub> and R<sub>8</sub>, taken together may form a 3 to 7 membered heterocycloalkyl; R<sub>9</sub>-R<sub>12</sub> are independently hydrogen, alkyl of 1 to 4 carbon atoms, perhaloalkyl of 1 to 4 carbon atoms, halogen, alkoxy of 1 to 4 carbon atoms, or cyano, or R<sub>9</sub> and R<sub>10</sub> or R<sub>11</sub> and R<sub>12</sub> may be taken together to form aryl of 5 to 7 carbon atoms;
- 10 W is O, NR<sub>6</sub>, or is absent;
- Y is -(CO)- or -(CO<sub>2</sub>)-, or is absent;
- Z is alkyl of 1 to 4 carbon atoms, -CN, -CO<sub>2</sub>R<sub>6</sub>, COR<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -OCOR<sub>6</sub>, -NR<sub>6</sub>COR<sub>7</sub>, -OCONR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, SR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or phenyl;
- G is alkyl of 1 to 6 carbon atoms;
- 15 X is a bond, -NH, alkyl of 1 to 6 carbon atoms, alkenyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, thioalkyl of 1 to 6 carbon atoms, alkylamino of 1 to 6 carbon atoms, or (CH)J;
- J is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, phenyl or benzyl;
- 20 and n is an integer from 1 to 6;
- or a pharmaceutical salt thereof, and a pharmaceutically acceptable carrier or diluent.

11. A method of inhibiting the replication of a herpes virus comprising contacting a compound of the formula:



25 wherein

- R<sub>1</sub>-R<sub>5</sub> are independently selected from hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkynyl of 2 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 carbon members, aryl, heteroaryl,
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- halogen, -CN, -NO<sub>2</sub>, -CO<sub>2</sub>R<sub>6</sub>, -COR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>,  
-CONR<sub>7</sub>R<sub>8</sub>, -NR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z provided that at  
least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen; or R<sub>2</sub> and R<sub>3</sub> or R<sub>3</sub> and R<sub>4</sub>, taken  
together form a 3 to 7 membered heterocycloalkyl or 3 to 7 membered  
heteroaryl;
- 5 R<sub>6</sub> and R<sub>7</sub> are independently hydrogen, alkyl of 1 to 6 carbon atoms,  
perhaloalkyl of 1 to 6 carbon atoms, or aryl;  
R<sub>8</sub> is hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon  
atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10  
10 members, aryl or heteroaryl, or  
R<sub>7</sub> and R<sub>8</sub>, taken together may form a 3 to 7 membered heterocycloalkyl;  
R<sub>9</sub>-R<sub>12</sub> are independently hydrogen, alkyl of 1 to 4 carbon atoms, perhaloalkyl  
of 1 to 4 carbon atoms, halogen, alkoxy of 1 to 4 carbon atoms, or  
cyano, or R<sub>9</sub> and R<sub>10</sub> or R<sub>11</sub> and R<sub>12</sub> may be taken together to form aryl  
15 of 5 to 7 carbon atoms;
- W is O, NR<sub>6</sub>, or is absent;  
Y is -(CO)- or -(CO<sub>2</sub>)-, or is absent;  
Z is alkyl of 1 to 4 carbon atoms, -CN, -CO<sub>2</sub>R<sub>6</sub>, COR<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -OCOR<sub>6</sub>,  
-NR<sub>6</sub>COR<sub>6</sub>, -OCONR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, SR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>),  
20 -N(R<sub>7</sub>R<sub>8</sub>) or phenyl;
- G is alkyl of 1 to 6 carbon atoms;
- X is a bond, -NH, alkyl of 1 to 6 carbon atoms, alkenyl of 1 to 6 carbon  
atoms, alkoxy of 1 to 6 carbon atoms, thioalkyl of 1 to 6 carbon  
atoms, alkylamino of 1 to 6 carbon atoms, or (CH)J;
- 25 J is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, phenyl or  
benzyl; and
- n is an integer from 1 to 6;
- or a pharmaceutical salt thereof, with a herpes virus.
- 30 12. The method of Claim 11 wherein the herpes virus is human cytomegalovirus.
13. The method of Claim 11 wherein the herpes virus is herpes simplex virus

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14. The method of Claim 11 where the herpes virus is varicella zoster virus.
15. A method of treating a patient suffering from a herpes virus infection comprising administering to the patient a therapeutically effective amount of a 5 compound having the formula:
- $$\text{R}_3-\text{C}_6\text{H}_3(\text{R}_1)(\text{R}_2)-\text{X}-\text{NH}-\text{C}(=\text{O})-\text{S}-\text{C}(=\text{O})-\text{NH}-\text{C}_6\text{H}_3(\text{R}_9)(\text{R}_{10})-\text{NH}-\text{C}(=\text{O})-\text{G}$$
- wherein
- R<sub>1</sub>-R<sub>5</sub> are independently selected from hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkynyl of 2 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 carbon members, aryl, heteroaryl, halogen, -CN, -NO<sub>2</sub>, -CO<sub>2</sub>R<sub>6</sub>, -COR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -NR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or W-Y-(CH<sub>2</sub>)<sub>n</sub>-Z provided that at least one of R<sub>1</sub>-R<sub>5</sub> is not hydrogen; or R<sub>2</sub> and R<sub>3</sub> or R<sub>3</sub> and R<sub>4</sub>, taken together form a 3 to 7 membered heterocycloalkyl or 3 to 7 membered heteroaryl;
- 10 R<sub>6</sub> and R<sub>7</sub> are independently hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, or aryl;
- 15 R<sub>8</sub> is hydrogen, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 10 carbon atoms, heterocycloalkyl of 3 to 10 members, aryl or heteroaryl, or
- R<sub>7</sub> and R<sub>8</sub>, taken together may form a 3 to 7 membered heterocycloalkyl;
- 20 R<sub>9</sub>-R<sub>12</sub> are independently hydrogen, alkyl of 1 to 4 carbon atoms, perhaloalkyl of 1 to 4 carbon atoms, halogen, alkoxy of 1 to 4 carbon atoms, or cyano, or R<sub>9</sub> and R<sub>10</sub> or R<sub>11</sub> and R<sub>12</sub> may be taken together to form aryl of 5 to 7 carbon atoms;
- 25 W is O, NR<sub>6</sub>, or is absent;
- Y is -(CO)- or -(CO<sub>2</sub>)-, or is absent;

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Z is alkyl of 1 to 4 carbon atoms, -CN, -CO<sub>2</sub>R<sub>6</sub>, COR<sub>6</sub>, -CONR<sub>7</sub>R<sub>8</sub>, -OCOR<sub>6</sub>, -NR<sub>6</sub>COR<sub>7</sub>, -OCONR<sub>6</sub>, -OR<sub>6</sub>, -SR<sub>6</sub>, -SOR<sub>6</sub>, -SO<sub>2</sub>R<sub>6</sub>, SR<sub>6</sub>N(R<sub>7</sub>R<sub>8</sub>), -N(R<sub>7</sub>R<sub>8</sub>) or phenyl;

G is alkyl of 1 to 6 carbon atoms;

5 X is a bond, -NH, alkyl of 1 to 6 carbon atoms, alkenyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, thioalkyl of 1 to 6 carbon atoms, alkylamino of 1 to 6 carbon atoms, or (CH)J; and

J is alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, phenyl or benzyl; and

10 n is an integer from 1 to 6;

or a pharmaceutical salt thereof.

16. The method of Claim 15 wherein the herpes virus is human cytomegalovirus.

15 17. The method of Claim 15 wherein the herpes virus is herpes simplex virus.

18. The method of Claim 15 where the herpes virus is varicella zoster virus.